NOTEBOOK SHOWDOWN! OUTBOUND VS. APPLE'S POWERBOOKS

FEBRUARY 1992

MacUser

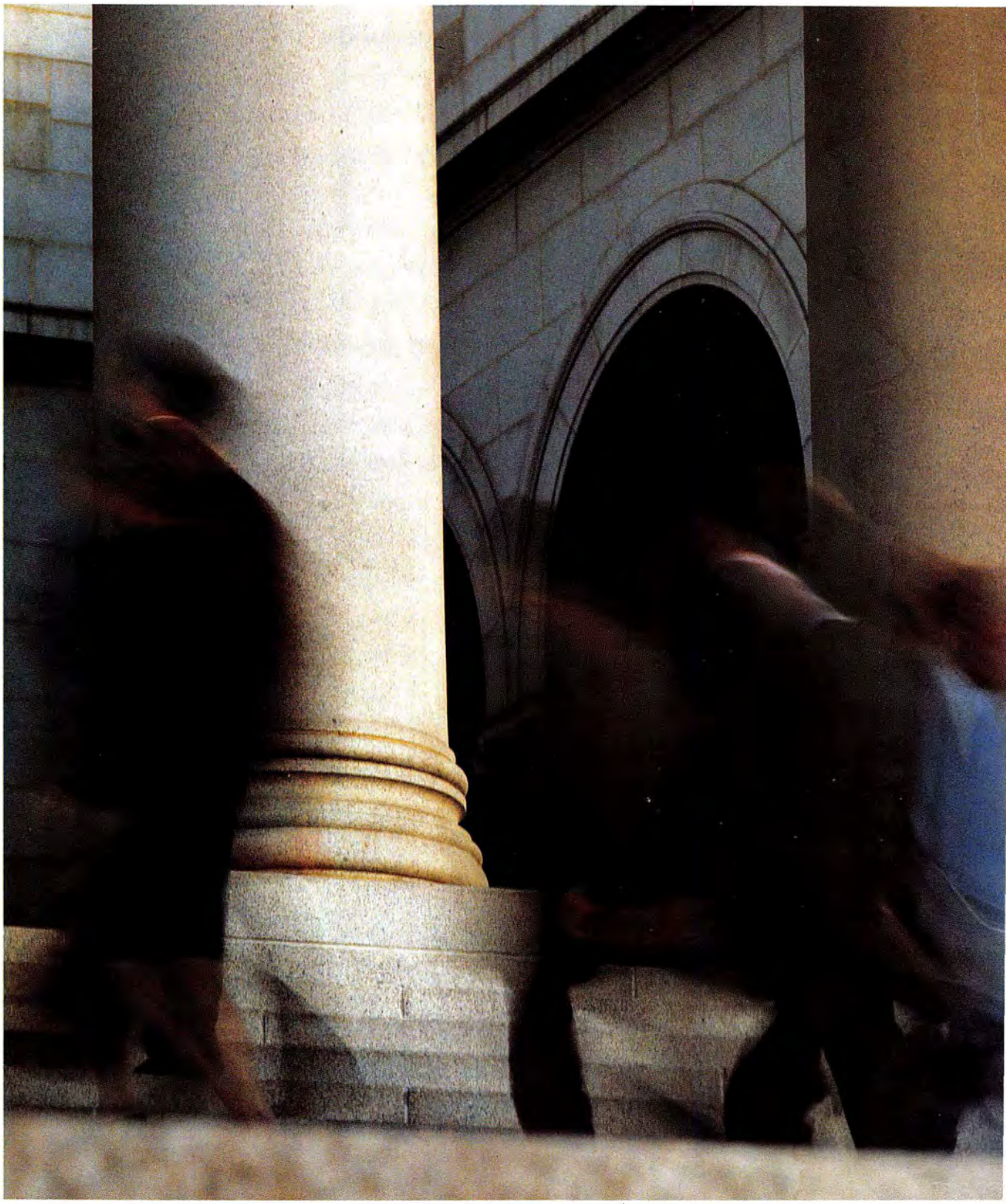
BIG SCREENS! LOW PRICES!

MacUSER LABS **Get the right color display for your Mac**

MAC MEMORY:
A one-minute guide on what to buy

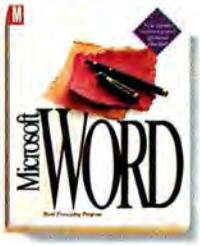
MacUSER LABS **THE ULTIMATE PRINTER:**
Are high-resolution printers worth the cost? Ten top contenders tested





WNERSHIP. PLEASE ALLOW 2-4 WEEKS FOR DELIVERY UPON RECEIPT OF ORDER BY MICROSOFT. OFFER EXPIRES 6/30/92. LIMIT ONE PER CUSTOMER. RESELLER PRICES MAY VARY. OFFER GOOD
NADA, CALL (206) 936-8661. MICROSOFT IS A REGISTERED TRADEMARK OF MICROSOFT CORPORATION. APPLE, MACINTOSH AND MAC ARE REGISTERED TRADEMARKS OF APPLE COMPUTER, INC.

After all, we think you're only as good as the people you work with.

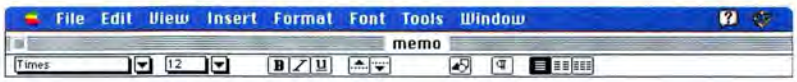


NEW WORD 5.0

When it came to designing new Microsoft® Word 5.0, we listened to you. After all, you know what you want.

And you told us. In your letters. Your faxes. Your post cards. To sum things up: you want a Word that will make doing your everyday work even easier.

So we came up with the Ribbon—think of it as easy access to powerful features. With it you can create columns, access fonts, change formats and use Word's new drawing tool. All with a single mouse click. You'll even be able to move text anywhere on your document with nothing more than a speedy drag and drop. Then there's our kinder, gentler print merge. It reduces a complicated process down to a few simple steps.



EASY ACCESS TO FEATURES YOU USE EVERY DAY.

We are also introducing word processing's first built-in grammar checker. A find file feature that can locate documents based on dates, keywords or the author. An auto-save reminder. And more. Did we mention we fully support System 7.0? Including Publish and Subscribe?

Current users of Mac Word interested in upgrading for $129* should call (800) 645-WORD, Department X07, or see their nearest reseller.

So please call as soon as you can. We can't wait to hear from you.

Microsoft

*OFFER GOOD FOR CURRENT LICENSEES OF MICROSOFT WORD FOR APPLE® MACINTOSH® VERSION 4.0 OR EARLIER. USERS WILL NEED TO PROVIDE A MAC WORD DISK OR MANUAL COVER AS P
ONLY IN THE 50 UNITED STATES. © 1991 MICROSOFT CORPORATION. ALL RIGHTS RESERVED. PRINTED IN THE U.S.A. FOR INFORMATION ONLY: IN CANADA, CALL (800) 563-9048; OUTSIDE THE U

Introducing new Microsoft Word. Of the people. By the people. And for the people.





WE LISTENED TO THOUSANDS OF
MAC® USERS, LIKE GUNNAR, TODD AND CHARLYN.
YOU CAN TAKE OUR WORD FOR IT.

MacUser

FEBRUARY 1992
Volume 8 Number 2
Cover photo by Steven Underwood
Cover screen image by Peter Alan Gould



172
High-resolution picture-perfect printers.



46
Before you buy that PowerBook, check out the Outbound Notebook 2030.



271
HyperCard ace Danny Goodman explains why there's no place like Home.



259
Get an instant education on the whats and whys of Macintosh memory.



190
When lightning strikes, will your Mac be prepared?

Features

Everyday Databases
BY SHARON ZARDETTO AKER
Four flat-file-database managers — RecordHolder Plus, DAtabase, Panorama II, and FileMaker Pro — go head to head. **110**

Publishing Your Data
BY ERIC TAUB
Turn your arduously collected data into a publication with one of five database-publishing methods. **120**

Staying in Contact
BY TOM PETACCIA
Maintaining sales leads with contact-management software is easy if you choose the right program. **130**

Is There a Pen in Your Future?
BY HENRY BORTMAN
The next technological leap in interface design — pen-based computing — is close at hand. **144**

MacUSER LABS **Big Screens for Small Macs: Mac LC and IIsi Color Display Systems**
BY MARK FROST AND THE MACUSER LABS STAFF
For your viewing pleasure, MacUser Labs unveils the big picture on eleven 8-bit-color display systems. **156**

MacUSER LABS **Practically Perfect Printing: High-Resolution PostScript Printers**
BY BRUCE FRASER, PAUL YI, AND THE MACUSER LABS STAFF
Can high-res PostScript printers replace imagesetters? MacUser Labs finds out. **172**

MacUSER LABS **When Lightning Strikes: Power Protection**
BY ANDREW EISNER AND THE MACUSER LABS STAFF
Surge suppressors and uninterruptible power supplies can protect your data. **190**

Departments

Jon Zilber
Use it or lose it. **23**

Guy Kawasaki
Who's in charge here: you or your Mac? **33**

Michael Swaine
Simulated-science savants. **37**

John C. Dvorak
Will Apple flunk out in schools? **372**

Letters
Readers stomp Excel, puncture balloons, and more. **13**

Advertiser Index **284**

Marketplace **345**

Sections


NEW ON THE MENU 43

Claris goes to Hollywood, Silicon Valley turns green, spreadsheets avoid gridlock, plus LCD meets MTV, and more. 43


DESKTOP PUBLISHING 209

Techniques
Publishing on the Mac doesn't have to be a solitary pursuit. A whole crop of new publication-management tools turns electronic publishing into a collaborative effort. 211

Step by Step
Modern art takes on a new definition with electronic collage techniques. 227


BRIDGES 231

Network Management
Inter•Poll and other traffic cops make it easy to simplify network maintenance. 233

Trouble Shots
Which AppleTalk router is telling the truth? Thankfully, you don't have to hold hearings to find out. 247


PERSONAL MACINTOSH 251

Personal Best
Steven Bobker tells why the ugliest word processor can also be the best. 253

Shopping List
Ten things to keep in mind when buying memory. 259


POWER TOOLS 261

Techniques
Demystifying System 7's publish-and-subscribe... 262

Beating the System
System 7's Apple events: upcoming and ongoing. 265

Power Programming
Danny Goodman helps you get a handle on HyperTalk handlers. 271

Tip Sheet
3.0-something: mastering QuarkXPress 3.0, FreeHand 3.0, Adobe Illustrator 3.0, Excel 3.0, and more. 275

Help Folder
Why can't Mac users issue commands such as Erase C:*.doc (and who would want to)? What does TeachText teach? Answers to these questions and more. 279

Reviews

Outbound Notebook 2030
Does Outbound's latest portable manage to top Apple's PowerBooks? 46

GreatWorks
Eight applications for $299 is a bargain, but don't call it integrated software. 48

PageBrush Professional
This free-form gray-scale hand-held scanner works like magic — slooow magic. 54

Personal Label Printer, LabelWriter II, and **Smart Label Printer Plus**
Three specialty printers address the perennial problem of printing labels. 56

Easy4D and **4thRight! Professional**
Two 4th Dimension shells take aim at simplifying database development. 60

Painter
This innovative painting program simulates natural brush dynamics and expression. 62

CompileIt! 2.0
Extending HyperCard's capabilities is quick and easy with this intuitive compiler. 74

Dynodex 2.0, Address Book Plus 2.0, and **QuickDEX II**
Get instant access to vital statistics with three second-generation personal-address-book managers. 78

WordScan Plus
Accurate and feature-packed, this OCR package saves retyping chores. 84

Quicken 3.0
The latest version of this best-selling checkbook and personal-finance package adds welcome new options and an interface lift. 89

Quick Clicks
FrameMaker 3.0: Page-layout powerhouse for long documents. **Spaceship Warlock:** State of the gaming art. **Cubase:** Make your own kind of music. **QuickTools:** Utility collectibles. 103

"Flat-file databases are a lot like alligators — they've survived because they fit their niche perfectly." 110



Guy's got company.



Guy Kawasaki, Macintosh Evangelist

TouchBASE is the personal contacts database that's loaded with powerful features, yet very easy to learn and use. Guy says it's the most functional piece of Macintosh software he's seen. But he's not the only one who's sold. Here's what others say:

"TouchBASE is the first product I've seen that is actually easier to use than the good old, reliable Rolodex." Don Crabb, *Byte*

"TouchBASE version 2.0 is the top of the heap for contacts management software." Steve Bobker, *MacUser and Computer Shopper*

"TouchBASE lets you easily enter, store, sort, search through and print reports, fax cover sheets, labels, and envelopes from the addresses in the database." Phillip Robinson, *San Jose Mercury News*

"Attention to detail shows everywhere in this well implemented program." Becky Waring, *MacWeek*

"At last, everything I wanted: multiple-function printing, multiple-user capabilities, phone dialing and powerful sorting...all in a desk accessory." Ken Gruberman, *MacValley Review*

New System 7 savvy TouchBASE 2.0 has over 20 major, new features! At just $125, it's a major bargain. 1.0 owners, upgrade for $25. Try our free demo. You'll be hooked, too.



Get the free demo.
818-780-3081

AFTER HOURS SOFTWARE

TouchBASE s System 6.0.5 and above and System 7 compatible. Requires a Macintosh Plus, Classic, and above. TouchBASE is a registered trademark of A.H. Software. Macintosh is a registered trademark of Apple Computer, Inc. ©1991. A.H. Software, 5636 Van Nuys Blvd., Suite B, Van Nuys, CA 91401 818-780-2220.

MacUser

Publisher
Janet Ryan

Editor
Jon Zilber

Associate Publisher
Jonathan A. Lane

Editorial
Executive Editor **James S. Bradbury**
Managing Editor **Nancy Groth**
Technical Director **Henry Bortman**
Senior Editors **Aileen Abernathy, Russell Ito, Rik Myslewski, Kelli Wiseth**
Technical Editor **John Rizzo**
Assistant Managing Editor **Claire Hamilton**
Chief Copy Editor **Eva Langfeldt**
Associate Editors **Mark Frost, Susan Janus, Stefan Lipson, Bruce Mewhinney, Victoria von Biel**
Senior Copy Editor **Rhoda Simmons**
Copy Editor **Mary Cole**
Assistant Editors **Darryl Chan, Michele Hasson**
Administrative Assistant **Nancy Peterson**
Contributing Editors **David Biedny, Steven Bobker, Andy Ihnatko, Guy Kawasaki, Bob LeVitus, Michael Swaine, Kathleen Tinkel, Kurt VanderSluis, Gregory Wasson, Robert R. Wiggins**
Contributing Anti-Editor **John C. Dvorak**
Assistant to the Editor **Teresa Campbell-Molina**

MacUser Labs
MacUser Labs Director **Rik Myslewski**
Associate Director **Jeffrey S. Pittelkau**
Project Leaders **Tony A. Bojorquez, Jeffrey K. Milstead**
Lab Technicians **Roman Victor Loyola, Sean Safreed**
Lab Administrator **Anthony Stoltz**
Network Administrator **Stephan Somogyi**

Design
Art Director **Lisa Orsini**
Associate Art Director **Diane Dempsey**
Associate Technical Art Director **Peter Alan Gould**
Art Production Manager **Jan McKenzie Rogers**
Technical Illustrators **K. Daniel Clark, Mark W. Sweeney**

Production
Production Director **Carlos Lugo**
Production Manager **Brenda Falco**
Assistant Production Manager **Monique Eisele**

Marketing
Director of Marketing **Vickie Welch**
Marketing Manager **Laurel Skillman**
Events Manager **Shannon Malliet**

Operations
Group Business Manager **Rosemarie Carbone**

On-Line/ZiffNet/Mac
Manager, On-Line Services **Ben Templin**
Assistant Project Leader **Shel Syed**

Ziff-Davis Publishing Company
Chairman and CEO **Eric Hippeau**
President **J. Scott Briggs**
Executive Vice President **Ronni Sonnenberg**
Group Vice President **J. Samuel Huey**
Group Vice President, Worldwide Direct Publications **Jim Stafford**
Senior Vice President, Marketing **Paul H. Chook**
Senior Vice President **Rachel Greenfield**
Vice President, Operations **Baird Davis**
Vice President, Controller **Howard Sckolnik**
Vice President, Creative Services **Herbert Stern**
Vice President, Research **Marian O. White**
Vice President, Circulation **Bert Lacy**
Vice President, Circulation Services **James F. Ramaley**
Vice President, Marketing Services **Ann Pollak Adelman**
Vice President, Production **Roger Herrmann**
Vice President, Technology **William B. Machrone**
Vice President, Classified Advertising **Paul Stafford**
Vice President **William L. Phillips**
Vice President **Claude P. Sheer**
Executive Director/ Information Systems **John Helliwell**
Executive Director/ Ziff-Davis Networks **Tony Uphoff**
Director of Business Development **Steven Rosenfield**
Director of Corporate Development **Jeff Weiner**
Licensing Director **Jean Lamensdorf**
Director of Planning **Gary A. Gustafson**
Production Director **Walter J. Terlecki**
Director of Sales Training **Dan Leonetti**
Director of Corporate Marketing **Susan Delman**
Editorial Director **Lewis D'Vorkin**
Director of Ziff-Davis Labs **Beth Springer**
Business Manager/Publishing Operations **Tom McGrade**

Ziff Communications Company
Chairman **William B. Ziff, Jr.**
Vice Chairman **Philip B. Korsant**
President **Kenneth H. Koppel**
Executive Vice President **Philip Sine**
Senior Vice President **Hugh Tietjen**
Vice President, General Counsel, and Secretary **J. Malcolm Morris**
Vice President, Controller, and Treasurer **Patrick J. Burke, Jr.**
Vice President, Human Resources **Frederick K. Staudmyer**
Vice President **Steven C. Feinman**
Vice President **Seth Alpert**
Vice President, Business Manager **T. L. Thompson**
Vice President, Chief Information Officer **Thor Olson**
Vice President, Electronic Editorial Director **Michael Kolowich**

Entire contents © 1992 Ziff-Davis Publishing Company, a division of Ziff Communications Company. All rights reserved; reproduction in whole or in part without permission is prohibited. *MacUser* is a registered trademark of Ziff Communications Company. *MacUser* is an independent journal, not affiliated in any way with Apple Computer, Inc.



ANTICIPATION. THE LAST THING YOU WANT IN A MAC.

For those of you who have been waiting for fast, reliable accelerator cards at affordable prices, the wait is over. With 12 years experience accelerating Apple products, Applied Engineering now introduces the TransWarp line of Macintosh accelerators. At prices that will quicken your pulse.

Our accelerators boost the Macintosh SE, SE/30, LC, IIsi and IIci to unrivaled levels of performance. We've designed around Motorola 68030 and 68040 processors to combine speed and guaranteed compatibility with all Macintosh hardware and software, including System 7 and A/UX. And at clock speeds from 25 to 50 MHz, your Mac won't get caught in the processing bottleneck. We back our products with a 30-day money back guarantee*, full one-year warranty and free 24-hour bulletin board support.



With our super fast accelerator cards, like the TransWarp 040, your Mac will never keep you waiting again.

For fast, reliable accelerator cards at affordable prices, don't wait. Visit an authorized Applied Engineering Dealer today (over 2000 nationwide) or call toll-free for a complete product catalog. And anticipate life in the fast lane.

APPLIED ENGINEERING®
The Apple enhancement experts

1-800-554-MACS Ext.552

*Through participating dealers.

CIRCLE 70 ON READER SERVICE CARD.

©1991 Applied Engineering, 3210 Beltline Road, Dallas, TX 75234, (214) 241-6060, Fax (214) 484-1365. All product names are the trademarks of their respective holders. Permission granted by H. J. Heinz Co.

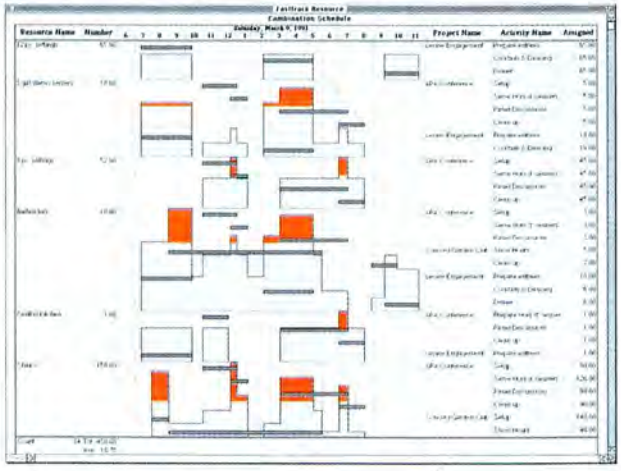
Bring This Ad To MacWorld Booth 2523 For A Chance To Win A New 040 Accelerator

Resource

$10 demo kit



Allocation



just stepped into the 90's!

No more pen and paper. FastTrack Resource™ allows you to allocate, assign, track and manage your:

- People
- Rooms
- Equipment
- Managers
- Facilities
- Computers
- Services
- Activities
- Time

With FastTrack Resource, you now have the power to choose the best resources to successfully complete activities.

Please call to order your $10 demo kit, or free information kit now!
(800) 346-9413 or (703) 450-1980.

AEC SOFTWARE

CIRCLE 100 ON READER SERVICE CARD.

MacUser

How to Reach Us

The editors of *MacUser* want to hear from you. Send questions, complaints, and compliments to *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Send electronic mail to MCI Mailbox 424-4936 or to ZiffNet/Mac (see below). *MacUser*'s general number is (415) 378-5600. We are unable to look up stories from past issues, recommend products, or diagnose your Mac problems by phone.

Information Exchange

If you have a question or problem or a tip to share, write to Help Folder or Tip Sheet, respectively, c/o *MacUser*, at the above address. If you are interested in contributing to our utilities disk or labs-benchmark disk series, write to Michele Hasson at *MacUser*. For more help, you can take advantage of local user groups. Call Apple toll-free at (800) 538-9696, ext. 500, for user-group information.

ZiffNet/Mac: *MacUser* On-Line

Follow these steps to join ZiffNet/Mac: Call (800) 635-6225 (voice) to find your local access number. Set up your telecom software with these settings: 8 bits, 1 stop, and no parity. Dial the local access number. When connected, press Return. At the following prompts, type in the responses printed in **bold**: Host Name: **CIS**. User ID: **177000,5200**. Password: **Z*MAC**. Agreement Number: **Z12D9014**. CompuServe users can just type GO ZMAC at any ! prompt.

Complaints About Advertisers

MacUser's editors are not responsible for the content of the advertisements in the magazine. However, if you bought a product advertised in *MacUser*, are dissatisfied, and can't resolve the problem, write to Doris Ashman, Ad Department, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Include copies of relevant correspondence.

Permissions and Reprints

Material in this publication may not be reproduced in any form without permission. Send permission requests to Chantal Lavelanet and reprint requests to Claudia Crichlow, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016.

Writing for *MacUser*

If you have an idea for an article you'd like to write, we'd like to hear about it. Send a query letter with samples of your writing (published, if possible) to James S. Bradbury, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Allow four to six weeks for a reply.

Product Announcements and Updates

Please send press releases to Michele Hasson, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

Subscription Inquiries/Change of Address

If you want to subscribe to *MacUser* or have a question regarding a subscription, call toll-free (800) 627-2247 (U.S. and Canada only) or (303) 447-9330 (all other countries) or write to *MacUser*, P.O. Box 56986, Boulder, CO 80322-6986. New subscriptions and address changes take six to eight weeks. For back issues (subject to availability), send $7 per issue, $8 outside the U.S., to Back Issues Department, Ziff-Davis Publishing Company, P.O. Box 53131, Boulder, CO 80322. *MacUser* (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Company, a division of Ziff Communications Company, One Park Avenue, New York, NY 10016. Editorial Offices: 950 Tower Lane, 18th Floor, Foster City, CA 94404. Telephone: (415) 378-5600. U.S. subscription rates are $27 for 12 issues, $45 for 24 issues, and $62 for 36 issues. Additional postage for Canada: Add $16 per year to the U.S. rates for surface mail. Single-copy price is $2.95 (Canada, $3.95). Canadian GST registration #R-123669673. POSTMASTER: Send address changes to *MacUser*, P.O. Box 56986, Boulder, CO 80321. Second-class postage paid at New York, NY 10016 and at other mailing offices.

The Audit Bureau

BPA

In Memory of
John J. Anderson
1956 – 1989
and
Derek Van Alstyne
1967 – 1989

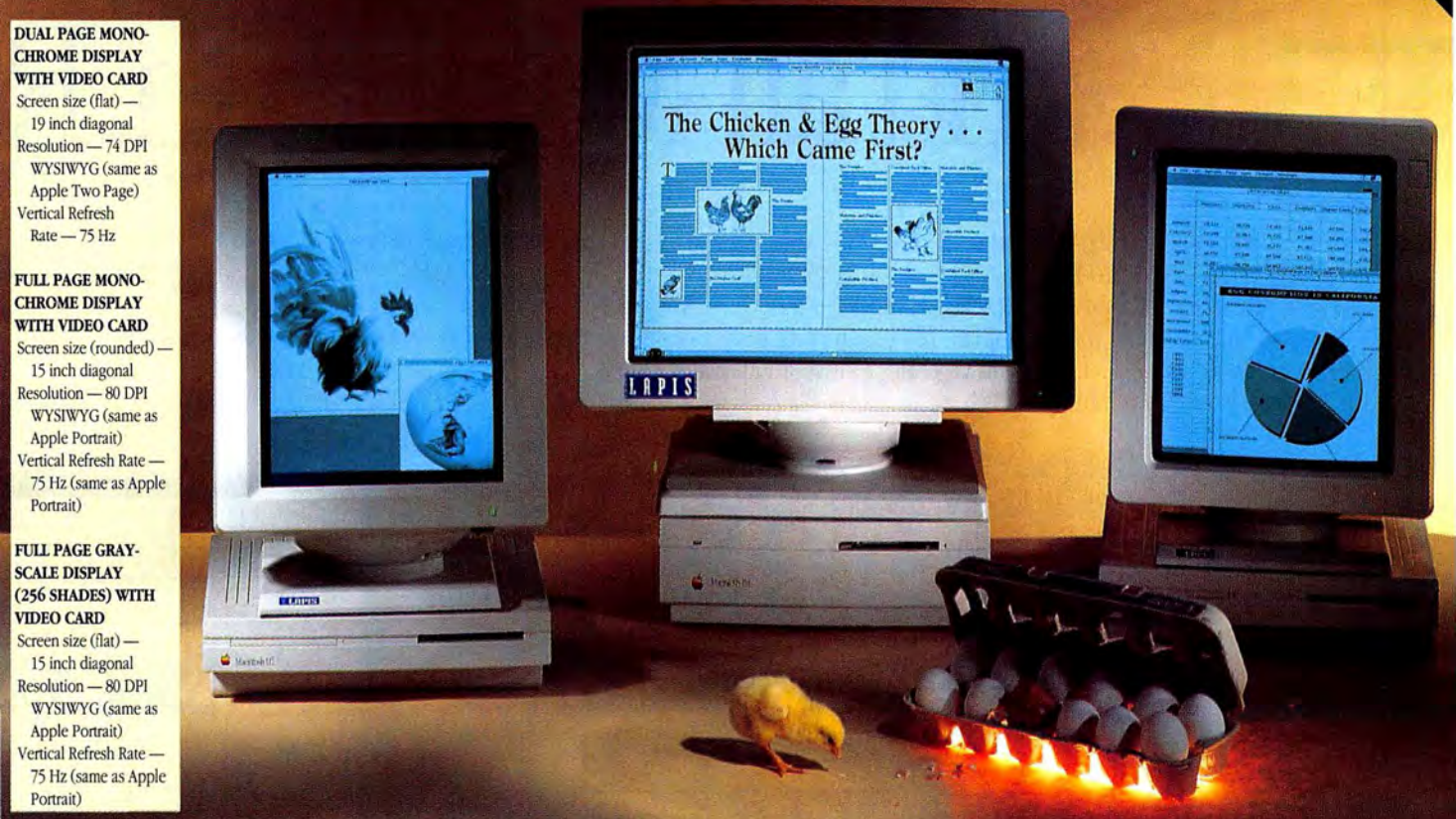
SEE US AT MACWORLD SF BOOTH # 2543 MOSCONE CENTER

Which Comes First...

DUAL PAGE MONO-CHROME DISPLAY WITH VIDEO CARD
Screen size (flat) — 19 inch diagonal
Resolution — 74 DPI WYSIWYG (same as Apple Two Page)
Vertical Refresh Rate — 75 Hz

FULL PAGE MONO-CHROME DISPLAY WITH VIDEO CARD
Screen size (rounded) — 15 inch diagonal
Resolution — 80 DPI WYSIWYG (same as Apple Portrait)
Vertical Refresh Rate — 75 Hz (same as Apple Portrait)

FULL PAGE GRAY-SCALE DISPLAY (256 SHADES) WITH VIDEO CARD
Screen size (flat) — 15 inch diagonal
Resolution — 80 DPI WYSIWYG (same as Apple Portrait)
Vertical Refresh Rate — 75 Hz (same as Apple Portrait)



The Display Card or the Display?

Silly question. For Lapis owners that is. You won't have to spend another second debating which comes first, because at Lapis they both do. Take our cards, for instance. For those of you who already have a monitor, we've got the most comprehensive line of display cards to drive it, both monochrome and color. We also have display cards for every Macintosh computer. In fact, you'll never have to go anywhere else for a display card. We've got all the bases covered. And when you turn to Lapis for a display solution, whether dual page mono-chrome, full page gray scale or full page monochrome, you'll get more than just a monitor, you'll get an entire system, Lapis card and all. You see, sometimes it's okay to put all of your eggs in one basket. So whether you're in the market for a display card or a complete display solution, Lapis makes sure that you'll always come out first. Of course that also goes for our service and support. We'll answer every question you ever wanted to ask when you call our technical support line. (Just don't try that chicken and egg one, it gets 'em every time.) Just call us at **1-800-43-LAPIS** for the location of the nearest Lapis dealer. Any more questions?



Lapis has a full line of Apple-compatible, fixed and programmable, display cards.

Lapis™

Unparalleled Service and Technical Support • One-Year Warranty • Dealer Inquiries Welcome

©1991 Lapis Technologies, Inc. All rights reserved. Lapis and the Lapis logo are trademarks of Lapis Technologies, Inc. Apple and Macintosh are trademarks of Apple Computer, Inc.

CIRCLE 132 ON READER SERVICE CARD.

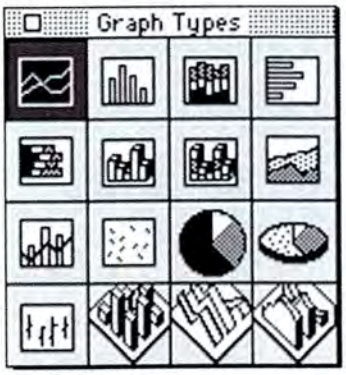
Only one spread and all Macintosh. R

One look and Apple Chairman and CEO John Sculley called it "a spectacular product."* And that's just for starters.

This isn't just another version of Lotus® 1-2-3®, it's a spreadsheet that really grabs hold of the full computing power of Macintosh®. So, everything you've come to love about Mac® computing is now available in 1-2-3.

A full-fledged, no-holds-barred Mac spreadsheet

Because it was designed and built just for Macintosh, Mac users will feel right at home with the menus, tools and the entire working environment of 1-2-3 for Macintosh. It includes features that push the capabilities of System 7 and everything that comes with it to the limit. Like Publish and Subscribe, Apple Events and Data Access Manager, to name a few.



1-2-3 delivers the graphing capability Macintosh was made for. Select from hundreds of variations with a palette full of 3-D, pie, bar, area and scatter graphs.

Its innovative "user interface" makes working with data, text and graphics not only fast and easy, but fun. Like In-Cell Editing, which lets you double click on a cell and then type and edit directly in it. Or the Unified Work Environment, which allows you to



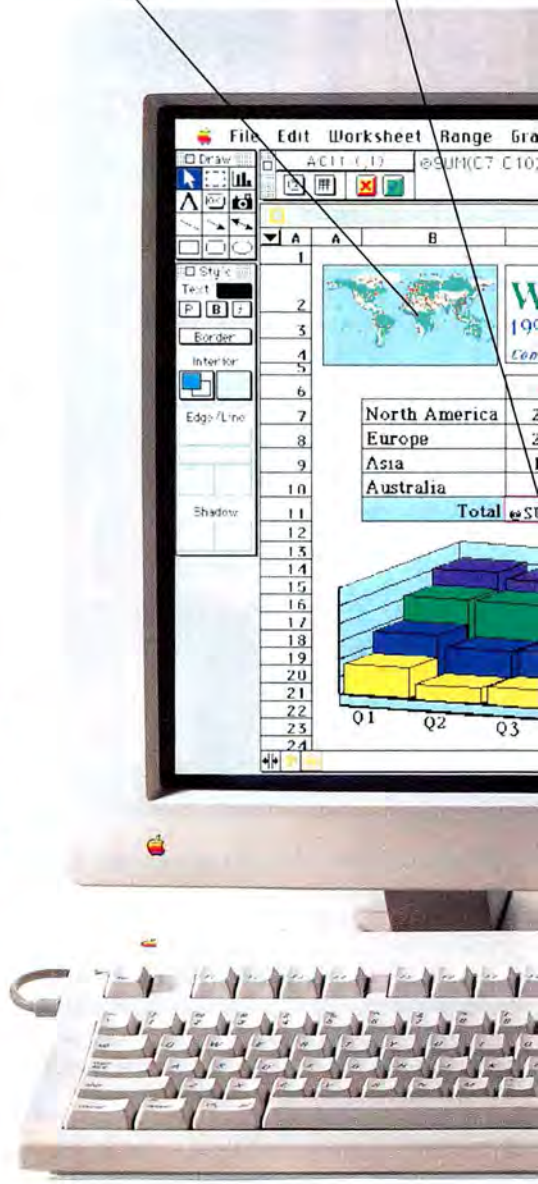
Output That Stands Out—*Bring your presentations and reports to life with an array of colors, borders, Adobe® type styles, and images.* ATM

manipulate data, text and graphics all in the same file with one set of menus. Change the color of your data the same way you change the color of your graphics. And directly manipulate data, graphs, drawn objects and scanned images.

1-2-3 for Macintosh delivers the graphing capabilities Macintosh was made for in a way that's incredibly flexible. You get superior

Be manipulative—*Command your worksheet with direct manipulation and formatting of all data, graphs and drawn objects.*

In-cell vs. Excel—*Enter data or formulas directly into a cell, bypassing the console if you choose. Sounds simple because it is.*

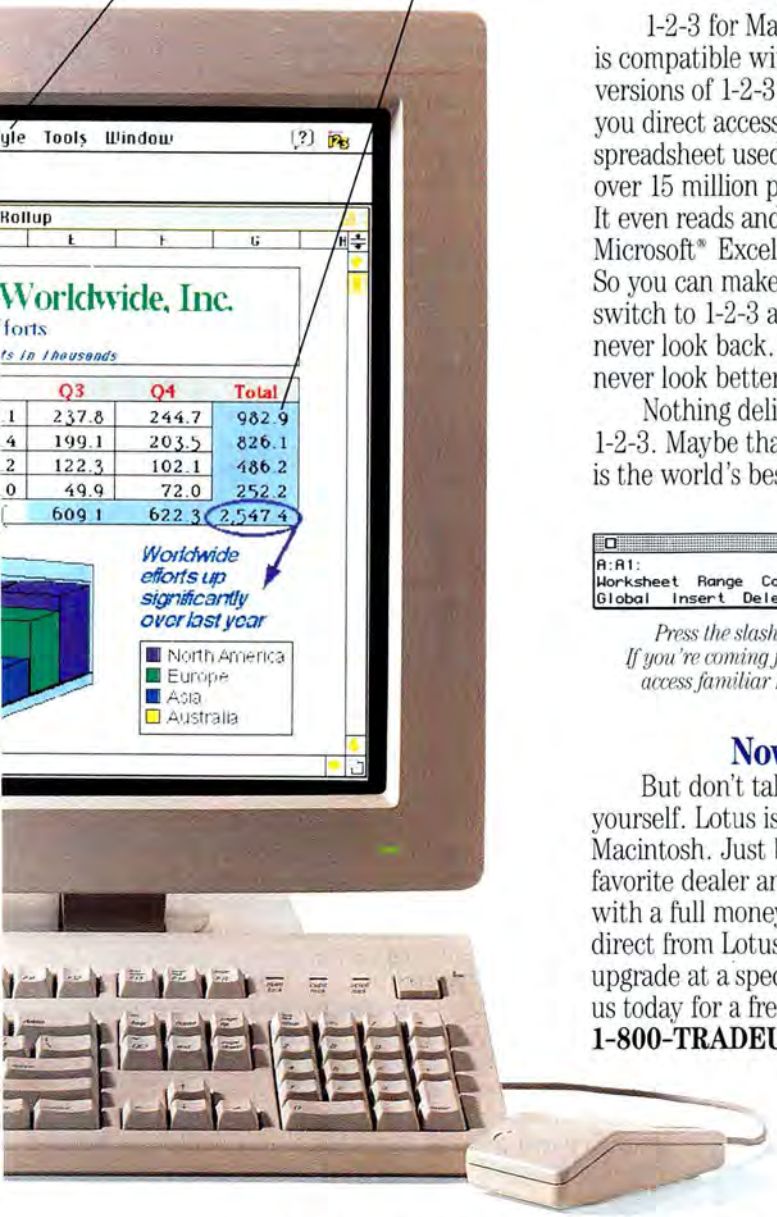


© Copyright 1991 Lotus Development Corporation. All rights reserved. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. Classic is a registered trademark licensed to Lotus Development Corporation. Macintosh and Mac are registered trademarks and Balloon Help is a trademark of Apple Computer, Inc. Microsoft is a registered trademark of Microsoft Corporation. Adobe and the ATM logo are registered trademarks in the United States of Adobe Systems, Incorporated. The Apple logo is a registered trademark of Apple Computer, Inc. used under license. *The Boston Globe, 6/4/91.

sheet is all 1-2-3
ght down to the core.

Unified Work Environment—*The menu never changes and all information resides in one file.*

Publish and Subscribe—*Change your data and that data will be automatically updated across your network.*



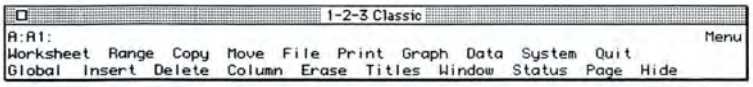
publishing and graphing functions including a rich variety of fonts and color choices. And with print preview, you see exactly what your output will look like, instantly, so you avoid surprises at the printer.

True 1-2-3 Compatibility

1-2-3 for Macintosh is compatible with other versions of 1-2-3, giving you direct access to the spreadsheet used by over 15 million people. It even reads and writes Microsoft® Excel files. So you can make the switch to 1-2-3 and never look back. And never look better.

It's one of your favorite System 7 features, so why shouldn't Balloon Help™ be part of 1-2-3? No matter where you are on the screen or what function you're in, detailed instructions are just a click away.

Nothing delivers on the capabilities of Macintosh like 1-2-3. Maybe that's why the world's best selling spreadsheet is the world's best choice for Macintosh.



Press the slash key and the 1-2-3 Classic® menu appears on your screen. If you're coming from the DOS environment, this will make it easier for you to access familiar Lotus commands and run macros already written for 1-2-3.

Now what are you waiting for?

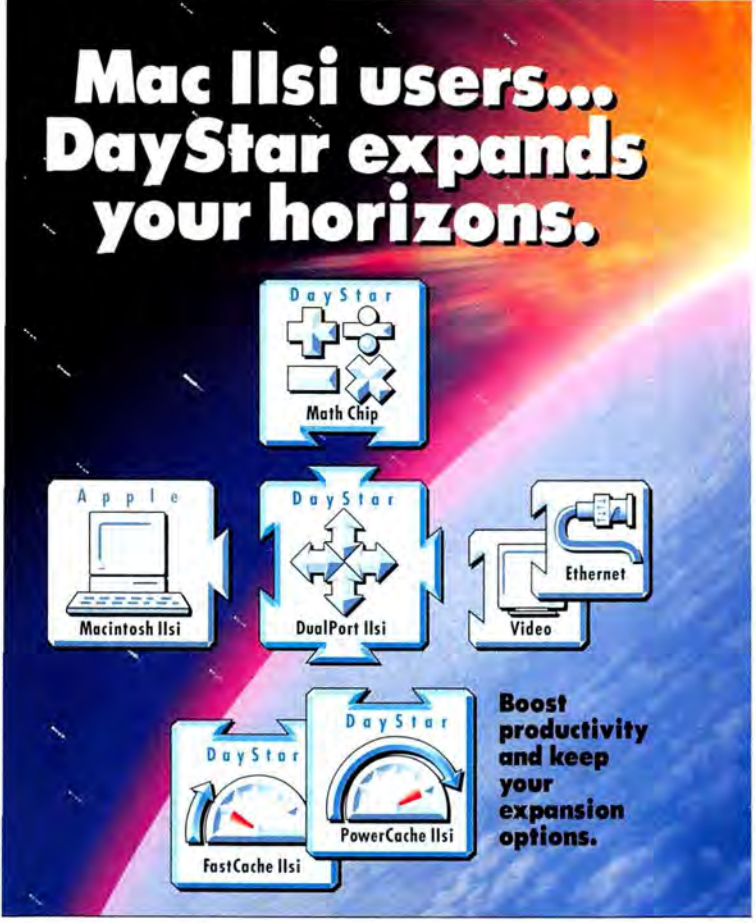
But don't take our word for it. See 1-2-3 for Macintosh for yourself. Lotus is offering a no-risk proposition for 1-2-3 for Macintosh. Just buy a copy from your favorite dealer and try it for 60 days with a full money-back guarantee direct from Lotus (Excel users can even upgrade at a special price). Or, call us today for a free demo video at **1-800-TRADEUP, ext. 6429.**



Introducing 1-2-3 for Macintosh

Lotus

Mac IIsi users... DayStar expands your horizons.



Now, get the powerhouse you need for design, publishing or spreadsheets. We deliver versatility and real gains in daily productivity.

DualPort IIsi. The best way to get a PDS slot or a math chip. It allows you to use both a PDS card and one of our cache cards in the same Mac IIsi. So if you're planning video or Ethernet, start with the versatile DualPort.

FastCache IIsi. Get a 30% boost in all applications. This is the same 64 K cache card we use in the powerful Mac IIci. *Includes the DualPort IIsi.*

Universal PowerCache. Accelerate everything to the highest levels of productivity. This is the card that MacWEEK magazine calls, "a powerful enhancement for the Mac... We highly recommend this product." Guaranteed 100% compatible!

SEPTEMBER 17 1991 SCORE CARD MacWEEK POWERCACHE "EXCELLENT" OVERALL VALUE

So go ahead, expand your horizons... you can't go wrong with DayStar Digital.

Come join us. 1-800-962-2077

Available through your favorite dealer

DAYSTAR DIGITAL

Universal POWERCACHE IIci • LC • IIsi • IIfx • IIcx • SE/30

5556 Atlanta Highway, Flowery Branch, GA 30542
International: (404) 967-2077, Fax: (404) 967-3018

This ad was completed with DayStar upgrades installed.
©1992 DayStar Digital, Inc.

SEE US AT MACWORLD EXPO BOOTH #542

CIRCLE 10 ON READER SERVICE CARD.

About MacUser

Worldly Wisdom

New products, new alliances, new technologies — it all adds up to a New World Order for the Macintosh. As the threads begin to interweave themselves, a pattern of issues and concerns emerges that is not unlike that of society at large: more global awareness, more environmental consciousness, and more sensitivity to the pinch of an increasingly tight economy.

Take, for example, the movement among Mac developers to port their applications to Windows. Aldus, Farallon, Macro-Mind, and now even Apple's own Claris (with its purchase of a Windows presentation package formerly distributed by none other than IBM [see page 45]) have joined the cosmopolitan multiplatform community. Perhaps Claris was pulled by the same inevitable and irresistible forces that drew Great Britain into the European Economic Community. As a MacUser Labs T-shirt slogan reminds us, "No Mac Is An Island," especially in the world of cross-platform computing.

Take, for example, Apple's abandonment of its classy white packaging in favor of boring brown (but environmentally correct) recycled cardboard. Apple has also announced a campaign for recycling and disposing of Portable and PowerBook batteries, and Hewlett-Packard continues to aggressively recycle laser-printer cartridges (see page 43). The recent burst of fonts-on-call discs points to a whole new direction of minimally packaged electronic software dissemination that has the added plus of rapid delivery. Simply call for an access code, and get the goods instantly (see page 209). To further this environmentally conscious trend, associate editor Mark Frost, along with the MacUser Labs staff, is compiling an expanded list of criteria for judging products, among which is environmental responsibility in packaging. Mark also spearheaded two lab reports this month: one concerns color display systems for the LC and the IIsi (see page156), and the other focuses on uninterruptible power supplies and surge suppressors, which can protect your investments in time and money (see page 190). The monitors lab report also includes recommendations on how to protect yourself from another potential environmental hazard: radiation emissions.



Associate editor Mark Frost monitors the state of color display systems.

Take, for example, the attention the manufacturers of those color displays are paying to pricing in today's market. Steve Bobker has been tracking this phenomenon, resulting in this month's column (see page 253) for budget-conscious buyers. Meanwhile, answer man Andy Ihnatko (see page 279) puts prices in proper perspective, pointing out that nowadays "full-blown word-processing programs . . . sell for as much as a good CD player."

What's the world coming to? Start reading, and find out.

Peter Norton Probably Won't Like This Ad



Neither will the guys who make MacTools Deluxe. After all, the ordinary defraggers they bundle with other products just can't be expected to compete against the revolutionary, new ALSoft DiskExpress II—the only truly personalized disk optimizer which optimizes the way you use your Mac. Only ALSoft DiskExpress II has all the intelligence, safety, control and unbridled speed you need to make your Mac run its absolute fastest. Even if your Mac is brand new! Which should be something you like a lot—even if our competitors don't.

COMPARE WHAT'S VITAL TO YOU IN OPTIMIZERS	ALSoft® DiskExpress® II 2.10	The Norton Utilities® Mac Speed Disk™ 1.1	MacTools® Deluxe Optimizer 1.2
"Faster than new" speed and maximum performance of your Mac by intelligently monitoring your actual file usage and grouping frequently used files together plus defragments them	YES	NO	NO
Safely optimize any disk, regardless of the amount of fragmentation, without causing directory damage and lost data	YES	NO	YES
Clicking the program's STOP button always halts optimization safely without causing directory damage and lost data	YES	NO	YES
Verifies the accuracy of what it reads and writes during optimization by double-checking your data using technology that works on all hard disks—even those from Apple	YES	NO	NO
Adeptly optimizes any disk containing bad blocks spared by System 7, Norton Utilities, MacTools Deluxe or Sector Collector™ without the hassle of having to reformat your entire disk	YES	NO	NO
Conveniently optimizes even the busiest AppleShare™, FileShare™ and TOPS® file servers without interrupting productivity and without taking file servers off-line	YES	NO	NO

ALSoft DiskExpress II

ALL OF THE SPEED NONE OF THE WORRY

Apple Macintosh System 7 Compatible

See us at MacWorld Expo, Booth #1228, for our show specials.

ALSoft • *FAX 713/353-9868 • INTERNATIONAL SALES 713/353-4090 • USA SALES 1-800-257-6381 or 1-800-ALSOFT1*

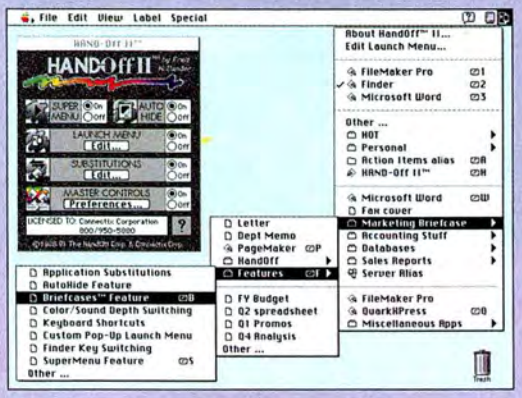
ALSoft and DiskExpress are trademarks of ALSoft, Inc. All other trademarks acknowledged. © 1991 ALSoft, Inc., all rights reserved.

CIRCLE 170 ON READER SERVICE CARD.

SEE US AT MACWORLD S.F. MOSCONE #2243

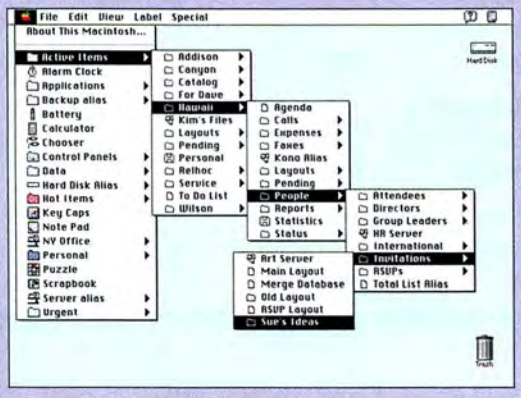
HAND-OFF II
THE PROVEN TOOL FOR FAST & EASY FILE ACCESS

Get more done in less time with HAND-Off,™ the productivity tool that makes file access a snap. As MacWEEK said, "It's so good that Apple should have included it in System software."



OPEN FILES INSTANTLY USING THE CUSTOM POP-UP LAUNCH MENU

The HAND-Off II launch menu lets you open any file or group of files with a single mouse stroke from anywhere. It's the most convenient way to launch documents. You can organize files and applications your own way. For example, you can open all of the letters, charts, spreadsheets and files associated with a project simultaneously with just a click.



LOCATE AND LAUNCH FILES QUICKLY FROM THE APPLE MENU

Click open any document, alias or application directly from the Apple menu. Speed through your control panels with a mouse stroke. HAND-Off II's SuperMenu™ turns the System 7.0 Apple menu into multiple levels for viewing, launching, and opening folders and files.

SUBSTITUTE PROGRAMS FOR MISSING APPLICATIONS

Say goodbye forever to the annoying "Application Not Found" message. If the application you need is missing, HAND-Off II will automatically launch a compatible substitute program.

You can also pre-assign substitutions (even for DOS files) and open them with your preferred application.

AUTOMATIC COLOR SWITCHING

Get the color depth and sound level you want for any application. It's simple with HAND-Off II. Run your Mac in full color when you use your favorite graphics programs. Then HAND-Off II will automatically change to faster black and white mode when you switch to a word processing or spreadsheet program.

ELIMINATE WINDOW CLUTTER

Moving through a maze of overlapping windows can be confusing and wastes time. Your Mac will be easier to use when you pair HAND-Off II's new AutoHide™ feature with System 7.0. AutoHide automatically hides all windows except the ones that your current application is using. By only showing active windows, AutoHide makes your desktop clean, fast, and more productive.

FREE PRODUCT OFFER

For a limited time, when you buy HAND-Off you'll get a copy of TrashMaster™ free. It's the new Macintosh utility by Fred Hollander, the author of HAND-Off.

A $69.95 value, this unique productivity tool lets you completely erase confidential files so they can't be recovered. Under System 7.0, it lets you manage files by selecting which items you want trashed and when.

TrashMaster can even empty the trash automatically. You'll free up precious disk space and get desktop security that meets Department of Defense specifications.

HAND-Off II and TrashMaster would normally cost well over $150. Now you can get them both when you buy HAND-Off (typically priced at less than $70).

Get HAND-Off II, the proven file launching tool that MacUser rates five mice. And, for a limited time, get a copy of TrashMaster at no additional charge.

Contact your supplier or Connectix: 415/571-5100 Fax: 571-5195 • 2655 Campus Dr. • San Mateo, CA 94403.

"The only utility that offers application substitution, and its Launch Menu is our favorite."
– MACWEEK

"HAND-Off can save you a good deal of trouble."
– MACWORLD

"It's a good value and a useful addition to any Macintosh."
– MAC BUYER'S GUIDE

"HAND-Off II will automatically locate and launch the proper application even if it has been moved or renamed."
– MACWEEK

"This utility is definitely in a league with Suitcase II and it's indispensible."
– MACUSER





800-950-5880

CONNECTIX CORPORATION

©1992 Connectix Corporation. SuperMenu and AutoHide are trademarks of Connectix Corp. HAND-Off II is a trademark of the Hand Off Corp. All other trademarks or registered trademarks are the property of their respective holders.

CIRCLE 62 ON READER SERVICE CARD.

LETTERS



*Computers have figured prominently in science fiction, and science-fiction writers have appeared in computer magazines. As a reader of both, Frank Henriquez, of Los Angeles, California, assesses their coupling after looking over our November '91 issue: "*MacUser *has Douglas Adams, and it's a Macintosh publication. Byte has Jerry Pournelle, and it's a DOS publication (the token Mac articles don't count). How to put this politely . . . hmmm . . . in the Battle of the Science Fiction Authors, I'll stay with* MacUser.*" And we have an editor named Bradbury!*

✉ *Write to Letters to the Editor, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of Zmac, our on-line service.*

All letters become the property of MacUser, *and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.*

Graphic Details

Your November '91 Step by Step article ("Skill and Special Effects," page 177) on how David Burwinkel created his PixelPaint Art Competition winner was informative. It should be pointed out, however, that he could only have done it with version 1.0 of PixelPaint Professional. For some idiotic reason, you can no longer import PostScript graphics with the new version, 2.0!

Ray Anderson
Manhattan Beach, CA

Burwinkel created a rough sketch in Illustrator and then imported the EPS file into PixelPaint Professional 1.0. The initial tracing could easily have been created in a variety of other drawing programs, saved as a PICT file, and brought into PixelPaint. SuperMac eliminated EPS support in version 2.0 in favor of improved 24-bit PICT features such as mesh warp and paste controls. — AA

The Multi-er the Merrier

As a Panasonic dealer and dedicated Mac-systems house, we're delighted with the positive comments about the Panasonic LF-7010 Multifunction Optical Storage drive ("Double Duty Drives: Multifunction Optical Storage," November '91, page 108). I'd like to add a few points to your report. The LF-7010 read and write times can be further improved by use of a Ten X OCU-150S hardware driver. Many of our customers use this unit for continuous recording/playback of 44-kilohertz digital music. In addition, the OCU-150S lets the LF-7010 operate in UNIX, DOS, or the Mac OS without software drivers. Multiple operating systems can even coexist on a single disk. That's a *true* multifunction drive.

Mark Heyer
Heyertech
Palo Alto, CA

On the Personal Side

I congratulate *MacUser* for introducing the Personal Macintosh section (November '91, page 203). It seems that Steven Bobker had the most fundamental Mac user in mind when he was writing "Beginner's Bucks" (page 205). I heeded his advice to add memory and am now reaping the benefits of my super-improved Mac Classic with System 7. I didn't expect his "basic" tips to make a big difference, but the way I work has improved tremendously.

Sonny Saulo
Van Nuys, CA

Dear Mr. Sculley . . .

How about those new PowerBooks? They fulfilled many items on the wish lists readers sent us after we asked you back in May '91 what they wanted in a *real* laptop. Now that they're here, are you ready to replace your desktop computer?

Speak Up:
Can a PowerBook take the place of a desktop Mac?

✉ *Send your thoughts to Dear Mr. Sculley, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404.*

Usually we get letters to Mr. Sculley that address several topics. This month, however, the letter writers dropped all else to focus on the **Apple/IBM alliance.**

M. Steven McClanahan, of Redding, California, in pondering what might become of Apple, asked Mr. Sculley a question of his own: "Did the big bad wolf look out for the welfare of Little Red Riding Hood? The one thing IBM has that Apple doesn't is money. It has a history of buying up and consuming companies larger than Apple — anybody remember Rolm? All this garbage about cross-platform operating systems is just a ruse to hide the fact that IBM is going to take the best elements of the Macintosh OS, graft them onto IBM's usual inferior product, and sell it to the public as being 'as good as a Mac.'"

Monte P. Buzzard, of San Luis Obispo, California, responded with a doomsday prediction: "I certainly hope I'm wrong, but I believe that the alliance will be the demise of Apple, although the diversified IBM will continue to exist. Apple and IBM won't be able to compete with small companies in sales of personal computers."

Equally disappointed, Laura Caron, of Raymond, New Hampshire, said, "You have no idea how this news of Apple's getting together with IBM depresses me. Apple is being bought out by the makers of the computers all Mac users swear they'll never use. I feel cheated. Don't turn into one of those executive lemmings you showed us in your early anti-IBM advertising."

Having witnessed the joining of several large car companies, Lynn Ellsworth, of Albany, New York, doesn't feel so gloomy. "Watching two great companies join together for strength and the sharing of abilities is a marvelous event to witness. It's more fun reading in *Fortune* magazine about companies joining together than it is reading in the *National Enquirer* about movie stars joining together. Thank you, Mr. Sculley and Mr. Cannavino, for the entertainment."

Let's see: Frank and Rita, Joe and Marilyn, Sean and Madonna . . . Sculley and Cannavino? This could be tougher than we thought.

The easiest way to create stunning charts and diagrams

Don't spend hours making charts and diagrams using a typical drawing program. The newest TopDown, version 3.0, lets you create great-looking flowcharts, organization charts, procedure diagrams and training materials more quickly and easily than ever before.

Instantly draw and update your diagrams. Connect symbols with just two mouse clicks. Connecting lines automatically re-route whenever you revise your drawing. Ten different line paths and many node connector styles provide you with maximum versatility.

Hide or show details in a hierarchy of drawing levels. TopDown has 110 different charting tools, including 12 ANSI symbols and a custom symbol creation capability. Color, text import, notecards, and on-line help make TopDown exceptionally powerful, yet easy-to-use.

Discover for yourself how easy it is to create great-looking charts and diagrams with System 7.0 compatible TopDown 3.0. Order a demo package for only $10.00, or call us at (713) 890-3434 today.

TopDown® 3.0



Kaetron SOFTWARE CORP.

(713) 890-3434
FAX (713) 890-6767
12777 Jones Road, Suite 445
Houston, TX 77070-4627

©1991 Kaetron Software Corp. TopDown is a registered trademark of Kaetron Software Corporation.

CIRCLE 97 ON READER SERVICE CARD.

LETTERS

I appreciated Steven Bobker's condemnation of software piracy but was disappointed later when he condoned voiding the warranty on your Mac by putting your own memory in and saying that your dealer should be expected to respect the voided warranty. If we're going to play by the rules, we should play by all of them.

John R. Nyquist
Itasca, IL

There's a big difference. Software piracy is theft, pure and simple. Every Mac since the IIcx has been designed for user access. The prohibition against installing SIMMs is possibly a reaction to this country's ruinous product-liability laws —and a legalistic attempt on Apple's part to void warranties. — SB

Adams' Apple

I've purchased your magazine since January '91 but for some reason have never made the move to buy a year's subscription. Bob LeVitus, Andy Ihnatko, and Guy Kawasaki are all pluses. (By the way, I would prepay for a ten-year subscription to *MacUser sans Dvorak!*) But seeing Douglas Adams ("Under-the-Desktop Publishing," page 213) in your November '91 issue tipped the balance in your favor.

Vincent Paquin
Two-Mountains, Quebec
Canada

We were truly amused by Douglas Adams' portrayal of the Typist in his article "Under-the-Desktop Publishing." Perhaps our new Typist Plus Graphics will bring back some of the *magic* he had anticipated when he first received the Typist.

Concerning your discussion about Typist in the beginning of the Personal Macintosh section (page 203), we'd like to point out an error.

As mentioned, the original Typist could be installed only at the end of a SCSI chain when a standard SCSI cable was used. However, when the Typist SCSI interface is connected with a SCSI T-Cable (which we are now including with the Typist Plus Graphics), the device can reside anywhere in a chain. This cable is most conveniently used at the beginning of the SCSI chain, because of the dual 50-pin connector that provides the T intersection, but it isn't limited to that location. The use of appropriate cable adapters and/or terminators in conjunction with other SCSI devices allows users to install the SCSI interface box in the middle, end, or beginning.

Dan Real
Product Marketing Manager
Caere Corp.
Los Gatos, CA

When Caere demonstrated the Typist Plus Graphics for us last September, the SCSI T-Cable was not included. We're glad to see that Typist users will now have SCSI freedom of choice. — JB

Less Than Excel-lent

Although Microsoft Excel 3.0 is a powerful, convenient, and relatively straightforward application, its pitifully primitive header and footer capabilities continually frustrate me.

To use the meager functionality of Excel's headers and footers, you must enter arcane, DOS-like symbols such as `&p`, `&d`, and `&f` to insert page numbers, dates, titles, and so forth. Excel would be even better if users could reposition headers and footers; have more than one line available for each; have a selection of fonts; and have an intuitive, graphical interface for headers and footers. This shouldn't be too much to ask of the publisher of Word, which has excellent header and footer capabilities.

Michael H. Kriegel
Woodland Hills, CA

Microsoft's product manager for Excel, Michael Pinckney, says: "We recognize the need to improve Excel's headers and footers, and a future version will make them as easy as the rest of the program.

"The comparison with Word is a natural one. On a technical level, however, implementing headers and footers is more complicated in a spreadsheet program, because it doesn't have the base of text-manipulation code that a word processor does. Because headers and footers are a more basic requirement in a word processor, they were addressed sooner in Word.

"Please call our new Excel Wish Line ([206] 936-9474) with any suggestions, which we'll consider for future releases."

Unclear Image

The 4½ mouse rating you gave digiMatic ("Quick Clicks," November '91, page 92) led to some whooping here in our office. We'd like to correct two small errors, though. Although the review was correct in stating that digiMatic doesn't include tools for "cleaning up" a digitized chart or graph, it didn't mention that the omission is because digiMatic works on "dirty" images without need for erasure.

WHEN WAS THE LAST TIME A DRAWING PROGRAM MADE YOUR PALMS SWEAT, YOUR PULSE RACE, AND YOUR HEAD SPIN.

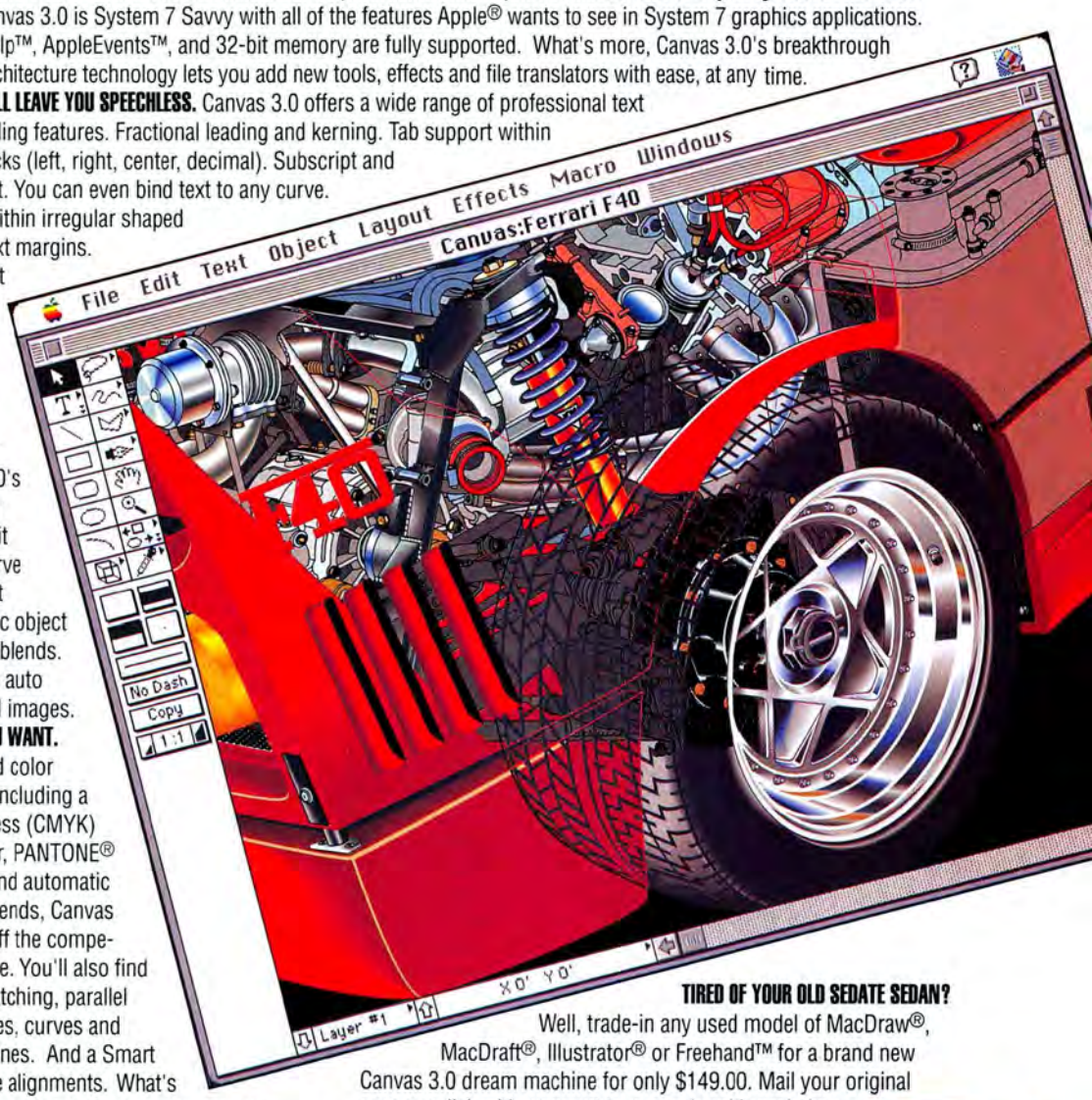
UNLEASH THE AWESOME POWER OF CANVAS 3.

Fasten your seat belt and get ready to take the incredible new Canvas 3.0 for a spin. Its exceptional performance and nimble handling make Canvas 3.0 the hottest precision drawing program on the market. And its formidable list of major enhancements puts it miles ahead of anything else on the road.

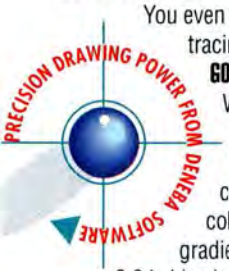
CRUISE INTO THE FUTURE TODAY. Canvas 3.0 is System 7 Savvy with all of the features Apple® wants to see in System 7 graphics applications. Publish & Subscribe, Balloon Help™, AppleEvents™, and 32-bit memory are fully supported. What's more, Canvas 3.0's breakthrough Open Architecture technology lets you add new tools, effects and file translators with ease, at any time.



IT WILL LEAVE YOU SPEECHLESS. Canvas 3.0 offers a wide range of professional text handling features. Fractional leading and kerning. Tab support within text blocks (left, right, center, decimal). Subscript and superscript text. You can even bind text to any curve. Wrap text around or encrust it within irregular shaped objects. Fully justify and slant text margins. Apply character by character font scaling. And convert TrueType™ and PostScript® Type-1 fonts into their Bézier curve outlines.



NOTHING HANDLES CURVES BETTER. While other drawing programs make you draw Bézier curves by "connecting the dots", Canvas 3.0's freehand tool lets you create any curve by simply drawing it. And it gives you unparalleled Bézier curve editing power -- from multi-point selection and editing to automatic object conversions, combinations, and blends. You even get centerline auto tracing of scanned images.



GO WHEREVER YOU WANT. With enhanced color capabilities, including a built-in process (CMYK) color separator, PANTONE® color support, and automatic gradient fills and blends, Canvas 3.0 is blowing the doors off the competition. But it doesn't top out there. You'll also find technical features like custom hatching, parallel lines and curves, and dashed lines, curves and borders. Automatic dimension lines. And a Smart Mouse™ drawing aide for precise alignments. What's more, there are new built-in file translators for important multi-platform formats like EPSF, TIFF, CGM, DXF™, IGES, and Illustrator®.

TAKE THE CHECKERED FLAG. Why drive some sedate sedan when you can own the road with the new Canvas 3.0.? It's incredibly easy to use -- and the list price of just $399 simply adds to the thrill. So, take a deep breath. Buckle up. Double click. And unleash the awesome power of Canvas 3.0. You're in for the ride of your life.

TIRED OF YOUR OLD SEDATE SEDAN?

Well, trade-in any used model of MacDraw®, MacDraft®, Illustrator® or Freehand™ for a brand new Canvas 3.0 dream machine for only $149.00. Mail your original program disk with payment to our main address below. Include your MC, VISA or Amex card number, account name and expiration date, or a check in US dollars drawn on a US bank. Add $10.00 shipping. Offer valid in the United States and Canada. Expires on 12/31/91. Please allow four to six weeks for delivery.



See us at MacWorld
Booth #229, Moscone Center

CANVAS™ 3

PRECISION DRAWING POWER FROM Deneba SOFTWARE

CIRCLE 186 ON READER SERVICE CARD.

For more information or the name of your nearest dealer call (305) 594-6965 or Fax: (305) 477-5794. Deneba Software, 3305 Northwest 74th Avenue, Miami, Florida 33122.

©1991 Deneba Systems, Inc. Canvas™ and Smart Mouse™ are trademarks of Deneba Systems, Inc., MacDraw® is a registered trademark of Claris Corporation. TrueType™, Balloon Help™ and AppleEvents™ are trademarks of Apple Computer, Inc. PostScript® and Illustrator® are registered trademarks of Adobe Systems Incorporated. MacDraft® is a registered trademark of Innovative Data Design, Inc., Freehand™ is a trademark of Aldus Corporation, PANTONE® is a registered trademark of Pantone, Inc., DXF is a trademark of AutoDesk Inc. The F-40 illustration was created and color separated using Canvas 3.0. We welcome environmentally sound ideas on what to do with tens of thousands of pre-owned master disks.

Documenting procedures just got easier

The fastest way to communicate a process or procedure is to show it in an easy-to-understand flowchart. FlowChart Express is the simple-to-use tool designed specifically for creating great looking flowcharts.

You'll find a set of standard flowcharting symbols that can be quickly placed where you want. Highlight important steps by adding shades or colors to your drawing.

You can connect symbols with just two mouse clicks. Choose from 10 different line paths. Your connecting lines automatically redraw when you move a symbol. Updating your drawings is a snap.

FlowChart Express will let you create drawings from a single page to the size of a wall. It's System 7.0 compatible and is ideal for PowerBook users.

Discover the new easy-to-use FlowChart Express. Order a demo package for only $10.00, or call us at (713) 890-3434 to order your copy today.

FlowChart *Express*



SEE US AT MACWORLD BOOTH #1948

Kaetron Software Corp.

(713) 890-3434
FAX (713) 890-6767
12777 Jones Road, Suite 445
Houston, TX 77070-4627

©1992 Kaetron Software Corp. FlowChart Express are registered trademarks of Kaetron Software Corp.

CIRCLE 98 ON READER SERVICE CARD.

Also, the price is $229 rather than $249.

Gary S. Huvard, President
Famous Engineer Brand
Software Company
Richmond, VA

The Big Bad Wolfsbane

After reading the comment ("New on the Menu," November '91, page 55) about protecting oneself from ELFs (extremely low frequencies) by using wolfsbane or holy water, I felt it necessary to warn your readers about the potentially disastrous inaccuracy of that statement. Although wolfsbane fends off werewolves and holy water defeats vampires, the best protection against the fey folk is cold iron. So unless you're cornered by a malevolent, blood-sucking were-ELF, a trusty broadsword should do the trick.

Andrew Platzer
Toronto, Ontario
Canada

Seventh Seal of Approval

If I didn't know better, I'd think there was an underground movement of Apple bashers working with the press to generate bad news about System 7. I've been in computer stores and observed "knowledgeable" salespeople advising customers not to upgrade, because of "severe and serious" compatibility problems. I've read letter after letter in Mac-related publications from users with the same complaints. I'm willing to bet that in most cases, the real problems are just above the keyboard — you know, the carbon-based unit that usually mucks up the computer.

All in all, I've seen more than 150 people successfully upgrade to System 7, and invariably they love it. System 7 works!

Marvin L. Price
La Verne, CA

The first thing I did when I began my system update to System 7 was run the Compatibility Checker. The second thing I did was trash the Checker and proceed with life. Most of my applications run fine. Yes, I admit, I miss the little clock that somehow turned into a balloon. Now I'm forced to look at my wrist — what sacrifices we must make!

John Schwab
Baraboo, WI

Burst My Balloons

First of all, why did Apple decide that the Mac was so user-unfriendly that it had to create Balloon Help? And second, why are so many people applauding this move? System 7 is a great piece of work (publish-and-subscribe, virtual memory), but let's face it, Balloon Help is little more than a huge monster disguised as a computer toy. From what I've seen, Balloon Help is a complete waste for most programs. Not only is it a memory and hard-disk hog but it's also an insult to many professional users. How many people using PageMaker need to have a little balloon tell them that the Type pull-down menu refers to the use and manipulation of text?

Cary Sawatsky
Dartmouth, Nova Scotia
Canada

If Balloon Help insults you, by all means, turn it off, but, please, leave it for the rest of us. Balloon Help is not meant to be something you keep on all the time but rather something to prevent you from running to the manual every time you forget what "convert extrusion factor" means. — JR

Double Back

Will Double Helix ever be recognized as a multiuser client/server database program that outperforms all others in that mode and runs on a Mac or VAX? Contrary to your report ("The Client/Server Revolution," November '91, page 185), the capability to use a Mac as a server has been available for some time. Double Helix has client/server software for the Mac and VMS.

The article also says that the technology won't progress until the software is as easy to use as FileMaker Pro, although Double Helix is far easier to set up as multiuser on a Mac or VAX than any of the network file-server applications.

Len MacDonell
Santa Cruz, CA

You're correct: Double Helix (which came out on top in the speed tests in our June '90 database roundup, "The Data Duelists," page 88) has always had an elementary client/server capability. Because of an editing error, however, a reference stating as much was omitted from David Beaver's article. Look for more on Double Helix in MacUser Labs' upcoming article on multiuser database programs. — VvB

Grasping Grappler

The May '91 article "Printing from Mac to LaserJet" (page 120) had several editorial oversights. The Grappler Series printer interfaces were inadvertently

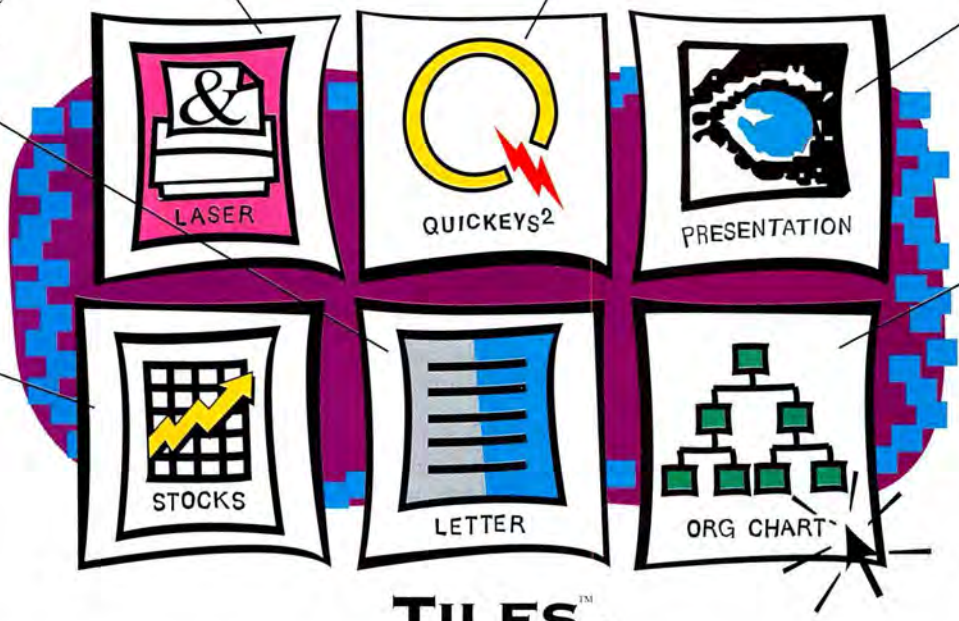
Find your documents and applications instantly – Tiles automatically organizes them for you.

Instantly switch between printers or network volumes in a click — *without* the steps and delay of using the Chooser.

Make your favorite QuicKeys into Tiles! QuicKeys² demo is included.

Easily personalize your Tiles by importing, colorizing and modifying graphics. A full library of color icons is included.

One Tile can log on to CompuServe, get the latest stock prices, drop them into your spreadsheet and print it all out.



Project Tiles bring it all together. One Tile can mount remote volumes, load personnel lists, open an org chart program and a color paint program – so all your tools and data are ready to use at once.

TILES™.

PROTECTION FROM THE LITTLE ELVES WHO INVADE YOUR MAC AND HIDE THINGS WHILE YOU SLEEP.

A BETTER WAY TO ORGANIZE YOUR WORK.

Some mornings it seems like someone's come in and hidden your work, doesn't it? If so, get Tiles protection.

Tiles puts everything you need to work at your fingertips, so you spend less time getting back to work and more time getting work *done*. Tiles tracks the applications and documents you use as you work, and creates easy-to-use icons called "Tiles." So when you need to get back to work, just click a Tile — no need to search through mazes of folders, launch a myriad of applications located on different servers, or try and gather all the pieces of that big project together again. Tiles remembers what you work on and where it is — just double-click.

If you share a Mac, you'll never have to worry where your "Macmate" may have filed things.

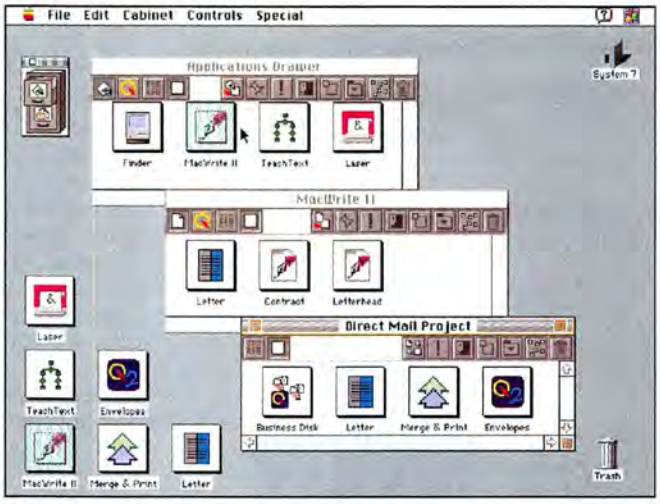
The Tiles you use most often reside on your desktop in neat, organized windows. You can even create Tiles for your favorite QuicKeys™, and launch your most complex tasks with a double-click!



INSTALL IN MINUTES– SAVE HOURS.

Set up Tiles once and never think about it again. It runs automatically and transparently in the background, and gives you the easiest way to automate and organize your work. Simply specify how many Tiles you want, where they go, how long to keep them around — even what size to make them.

Face it, occasional catastrophes are nothing compared to the daily time lost from little things that go astray. If you knew how much time you lost daily just getting organized, you'd be amazed.



Tiles — the intelligent desktop — keeps copies of frequently used Tiles on your desktop for instant access. Find out how easy your work can be — just call for our free demo.

TRY TILES FREE.

We're so sure you'll be delighted with Tiles, we'll send you a free demo. Take five minutes to find out how easy it is to save hours. Call today.





1-800-523-7638

ASK FOR DEPT CE39

CE SOFTWARE INC

Connecting people and productivity.

©1991, CE Software, Inc., P.O. Box 65580, West Des Moines, IA 50265, U.S.A. QuicKeys and Tiles are trademarks of CE Software, Inc. All other registered and unregistered trademarks are the sole property of their respective companies.

CIRCLE 94 ON READER SERVICE CARD.

FORGET ABOUT DISK CRASHES



DiskTwin 2.0
100% HARD DISK PROTECTION

DiskTwin™ 2.0 makes an up-to-the-instant backup of one disk to another. The backup comes online instantly, eliminating downtime when disks crash.

EFFORTLESS: Set it up and forget it! Your backup is ready-to-use – there's nothing to restore!

IDEAL FOR SERVERS: Fully compatible with AppleShare® and E-mail servers.

ELIMINATES DOWNTIME: Detects a disk crash and seamlessly switches over to the backup disk!

NO SLOWDOWN: Doesn't slow your Macintosh down. You won't even know it's running.

MacUser 4 1/2 November 1991

UNIVERSAL: Works with all models of SCSI disks, even from different makers. No need to reformat your current disks.

800/326-1858
See us at MacWorld Booth #5807 Brooks Hall

GOLDEN TRIANGLE
4849 Ronson Court
San Diego, CA 92111 USA

CIRCLE 67 ON READER SERVICE CARD.

misidentified. The Grappler LS is the inexpensive, serial version, similar to the plain serial-cable configuration of its competitors, MacPrint and JetLink. They have a maximum data-transmission speed of 19.2K. The substantially faster and most popular model, the Grappler LX, uses a hardware-based 57.6K serial-to-parallel converter. The parallel-conversion technique significantly reduces the transmission time of the bit-mapped graphics data to the Hewlett-Packard LaserJet printer.

On the issue of fonts, the Grappler Series supports TrueType fonts, which are licensed from Apple and supplied with Grappler software. By avoiding the custom bit-mapped fonts used by other printer-interface manufacturers, the Grappler conserves disk space.

With regard to your limited benchmarks, we suggest that in the future, print samples include a wider variety of fonts, styles, and graphic pictures in multipage documents. Inclusion of these elements would more accurately reflect the traditional DTP Mac user environment, one in which the Grappler excels.

Arthur F. Scotten, President
Orange Micro, Inc.
Anaheim, CA

Breaking the Silence

After frustrating hours spent trying to find my hard drive on my computer, I called my dealer to ask if I was in fact losing my mind. When I told the people there that I had a Sony drive, they informed me that Apple had issued a "silent recall" on some of the drives, identifiable by the serial number. After identifying my drive as one of the recalls, my computer store replaced it with a new drive from Apple. Quite frankly, the Quantum drive Apple supplied is a piece of junk. My formerly silent SE/30 now sounds as if it's going to fall apart every time it boots up. Apple is blaming Sony, Sony is blaming Apple. Which of these two giants is going to stand up and take some responsibility?

Evan M. London
Hastings-on-Hudson, NY

Silent recall *isn't quite the right term. Not all the Sony drives are expected to fail, which is why they're not actually being recalled. To qualify for Apple's Hard Drive Repair Extension Program, the drive must (1) be less than four years old, (2) be experiencing sticktion problems (the platter doesn't spin up after the drive has been powered down for a period of time) or head crashes (the drive may or may not mount, and data may be corrupted), and (3) match a specific model and serial number. Any Mac store can check the number for you, or you can access a table of the numbers on Zmac, our on-line service hosted by CompuServe. Download the file SONYDR.TXT in Library 7 (Reference) of the Download and Support Forum. If you need to know more, call the Apple Customer Assistance Center, at (800) 776-2333. — NP*

Driver's Ed

The cover of your November '91 issue promises "32 Hard Drives — tough tests, easy choices" ("Searching for Storage Perfection: 100-Megabyte Hard Drives," November '91, page 124). Total hogwash! Perhaps it should have been "Quantum LP105S — which case do you like?" You should have tested *all* the available drive mechanisms, from which there are many more to choose.

Power-supply quality probably has more to do with how long that plastic box will function than any other factor. Let's face it — many of these drives were designed (I use that term loosely) by marketing people who used the cheapest power supply they could get. After all, it doesn't show up on the spec sheet — why spend more money? Let's hear about the things that aren't in the spec sheet!

George Paight
Santa Cruz, CA

Beginning this year, our lab reports on storage devices are emphasizing reliability and vendor support as much as performance benchmarks (see last month's report on magnetic-cartridge drives for an example). Future hard-drive reports will be based on more than 40 criteria. We'll do just what you suggested: open the drives and examine the power supplies for surge suppressors, fuses, correct power rating, shielding, and use of toroids. All the criteria will be compared against price to give you a good idea of where vendors are putting their money. — MF

Wife with Meaning

We wives, female ones included, are always pleased when one of our own is able to educate the public on our plight and share with them the rewards of wifedom. I always enjoy Guy's column, but I loved "My Life As a Wife" (October '91, page 29).

Chris Mayou
Onalaska, WI

CoStar's new ergonomically designed trackball beats the competition hands down.

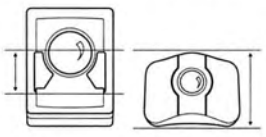


Old fashioned trackball

Stingray ergonomic trackball

A few years ago trackballs were a big idea. They provided more speed and precision than a mouse and took up less desk space. Unfortunately, over time they also felt big. And heavy. And uncomfortable.

Well, now there's a smaller, much more comfortable idea, The Stingray™ ergonomic trackball from CoStar.



Unlike its predecessors, Stingray's no-miss buttons make up 70% of its surface area.

The Stingray was carefully designed to work with the human hand. Its low profile offers a natural position, reducing strain on the hand, wrist, and forearm. The ball is 75% smaller and lighter. And the jumbo size buttons mean that no matter where your hand rests on the Stingray, it's resting on a button.

So, if you'd like all the advantages of a trackball with all the comfort of a mouse, give us a call. When you compare the Stingray to the pointing device you're now using we think you'll agree, there's just no competition.

Stingray lists for $129. For more information on the Stingray ergonomic trackball or the dealer nearest you, call 1-800-4-COSTAR. In CT and outside the U.S., call 1-203-661-9700.



Stingray: available in Mac Platinum and Stealth Black.

See us at Macworld Moscone Ctr. #137

CIRCLE 87 ON READER SERVICE CARD.

©1991 CoStar Corporation, 22 Bridge St., Greenwich, CT 06830. Fax: 1-203-661-1540.
Stingray is a trademark of CoStar Corporation. All other trademarks acknowledged. French, German, Italian, Spanish versions available.

CO STAR

Some things are clearly built for speed.



Hang on! At 17 pages per minute, the new HP LaserJet IIISi printer for the Macintosh runs full tilt. With a high-speed engine, more standard memory (5MB, expandable up to 17MB), and a RISC-based formatter, this printer can have your work finished faster than you can shout "the HP LaserJet IIISi for the Macintosh."

Designed specifically for high-volume printing, this machine comes with two 500-sheet input trays, a 500-sheet output capacity, and a 50,000-page-per-month duty cycle. In addition to quick turnarounds, you gain paper-handling versatility with job offset and a tray-full sensor. And for even greater flexibility, you have the option of adding two-sided printing and an envelope feeder.

What's more, our printer has true Adobe® PostScript® built in. Which means this machine whips through PostScript printing, while others may keep you



Others aren't so obvious. Introducing the LaserJet IIISi for the Macintosh.



Works with LocalTalk and EtherTalk.

waiting. So whether your workgroups are networked by LocalTalk, EtherTalk, or sharing files between both, simply plug in and they're ready to roll.

Perhaps the best news of all is the price. The HP LaserJet IIISi for the Macintosh is only $6,995.* So if you're interested in affordable, express printing with the service and reliability you've come to expect from Hewlett-Packard, call **1-800-752-0900, Ext. 2607** for the name of your nearest authorized HP dealer.† And discover the printer that will take your breath away.

LaserJet Printers
When it's important to you.

HEWLETT PACKARD

*Suggested U.S. list price. Adobe and PostScript are registered trademarks of Adobe Systems, Inc. in the United States and other countries. †In Canada call **1-800-387-3867, Ext. 2607** © 1991 Hewlett-Packard Company PE12122

[NEW PERSONAL MESSAGING SOFTWARE FOR ALL YOUR COMMUNICATION NEEDS.]

© 1991 Asanté Technologies, Inc. All brand names and products are trademarks or registered trademarks of their respective holders.



There's no better way to communicate than PersonToPerson.



Asanté™, the leader in Macintosh networking introduces an array of messaging tools that bring the personal touch back to inter-office communication.

Tools that make this the only sure way to get your message delivered.

With PersonToPerson™ software, you can now send voice mail messages across the network, check whether a co-worker is in or out of the office, or use the electronic Post-it™ Note window to leave someone a message. You also get a built-in calendar with timed reminders for appointments. And the personalized screensaver lets you leave messages on your screen while you're away from your desk.

It's all done without the added expense of a dedicated Macintosh® server. And our simple, one-button installation loads the program as an INIT.

And because PersonToPerson automatically sends messages when you attach your Macintosh to the network, it's a great tool for PowerBook users who create and send messages when out in the field.

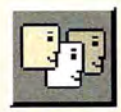

[Express Out Mailbox]


[Personalized Screensaver]



[Built-in Calendar]


[Electronic Notepad]


[In/Out Board]

ASANTÉ
ALL THE RIGHT CONNECTIONS™

So now your company or departmental work group can interact the best way there is—PersonToPerson.

Resellers: Asanté products are available from Ingram Micro, Tech Data and Macamerica.

[Asanté Technologies, 404 Tasman Dr., Sunnyvale, CA 94089, 1-800-662-9686]

CIRCLE 81 ON READER SERVICE CARD.

JON ZILBER

What's the Use?



The hot buzzword in Macintosh software these days is *usability* — creating products that work for you, not despite you.

When archaeologists of the future begin to explore the late 20th century, three baffling puzzles will leave them mystified and will keep dozens of grad students busily employed for decades: (1) How come, as late as the 1990s, radios were still sold with analog tuning, when digital technology was more reliable, cheaper to manufacture, and easier to operate? (2) How come VCRs came loaded with incredible features that neither the salesperson nor the manual nor, least of all, the front control panel was able to explain? (3) How come the Mac interface interpreted the same action — dragging something into the Trash — as either a command to delete a file or a request to eject a disk, even after the much ballyhooed System 7?

There will be other questions as well. Why did the inefficient QWERTY keyboard layout (designed to slow down the speed of data entry to prevent early typewriters from jamming) persist long after the typewriter went the way of the dodo, the Edsel, and The Bay City Rollers?

Why didn't software companies ever use the "splash" screen — the box that comes up when you launch an application — to provide useful information, such as the tech-support phone number or tips on the most misunderstood or underutilized features of a program, instead of a legalistic disclaimer or a shameless plug for the company?

Why didn't software companies ever use the computer to help them better understand and better serve users? That is, why didn't the software of the 1990s automatically watch your usage habits for a while and adjust your preferences and defaults automatically? Why didn't the hardware and software keep track of the tasks you were doing and volunteer information about features you weren't using that could make your job easier?

If any of you archaeologists happen to dig up this column, I'll make your life simpler. The answer to all these questions is the same: In the computer industry, marketing takes a backseat to technology.

If you've just picked up this issue from your mailbox filled with fliers, product information, and catalogs from your local computer superstores, you might wonder how anybody who suggests that computer companies don't do more than their fair share of marketing has managed to avoid all the junk mail you're subjected to. Sure, there's plenty of marketing going on. Even this magazine is filled with ads, and it comes with postpaid postcards for requesting even more information from product vendors.

But that's just the output side of marketing. On the input side, it's the engineers and technologists who call the shots. They're the ones who decide what product to create next. They're the ones who decide what features to include and which features will die on the cutting-room floor. They're the real power brokers of the computer industry.

These technologists who are calling the shots in Silicon Valley don't care much about the little things that make you miserable and unproductive. Technologists rarely go for the simple solution anyway. Awkward keyboard layout slowing you down? Get an accelerator. And, hey, you can change that splash screen in just a few minutes, using ResEdit or MacApp.

Technologists tend to use technology to fix the problems of technology. The trick of good marketing, on the other hand, is to find out what your customers want and to deliver it. (The trick of bad marketing, on yet another hand, is to find out what your customers want and to tell them that you have it until they believe you. But that's another story.)

Technology is rarely a good tool for fixing technology; instead, it begins to perpetuate itself for its own sake. One recent study shows that, on average, computers in manufacturing environments actually decrease productivity; they take more time to set up, run, and maintain than it takes to do the tasks they are supposedly intended to simplify.

In a similar vein, social critic Jerry Mander observes in his book *In the Absence of the Sacred* (Sierra Club Books, 1991), "If you include the time needed to earn money to pay for and repair all the expensive 'time-saving' gadgets in our lives, modern technology actually *deprives* us of time."

But the tide is finally beginning to turn in 1992. That's the year future historians will cite as the start of The Great Usability Revolution.

Buzzword *du Jour*

Usability is *the* word in the computer industry today. Just read the ads or go talk to your computer dealer. "Our software is more usable than their software." "Our hard drive offers maximum usability." "Our magazine delivers more usable reviews evaluating the usability of hardware and software for the Mac, the computer rated highest for usability."

Say goodbye to intrapreneuring, the one-

minute everything, Theory Z, zero-sum thinking, brainstorming, quality circles, holistic management, and the search for excellence. *Usability* is the only buzzword you need to know.

Usability is not quite the same as *user-friendliness*, nor is it just an extra couple of syllables that lets you charge twice as much for a product as you could if you merely claimed that your product was useful.

So what is it?

The best way to understand what usability is is to understand how usability is used. There are three steps in creating a certifiably usable product:

1. Listen to the people who are going to be using your product (also called customers) to find out what they want. (Has anybody ever heard of your product? Does anybody have the problem your product solves?)

2. Observe customers in the act of using your product to see how well they like it. (Were they were able to figure out how to get the thing turned on?)

3. Come up with a way to solve the problems you observed in step 2, and go back to step 1 to see if it worked. (Bear in mind that for a solution to work, it must both solve the problem and communicate that fact to the customer.)

'The customer is always right' has always played second fiddle to 'Technology is king.'

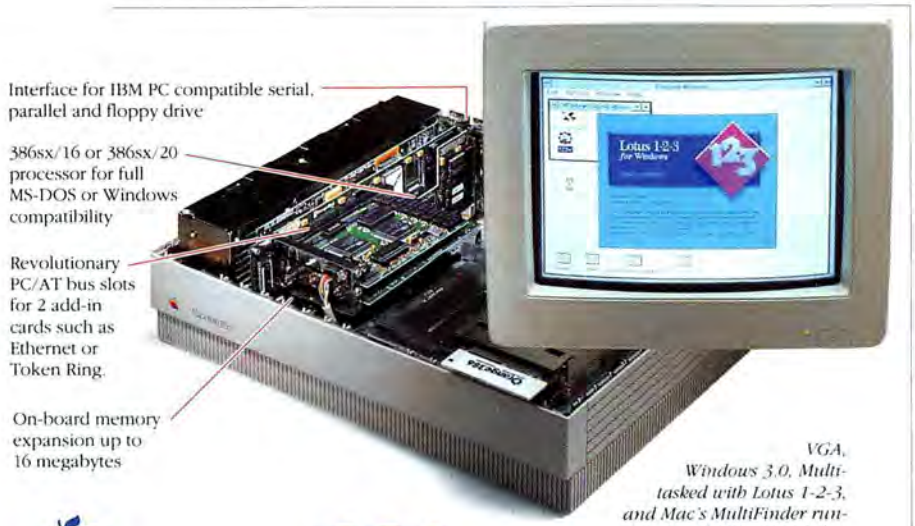
Optimizing software for usability usually involves fairly simple changes: labeling commands more clearly so users are more inclined to discover and use all the power your product has to offer, placing palettes so they don't hamper smooth operation of the software, providing appropriate shortcuts to automate the most-commonly-performed functions.

In Search of Usability

There's nothing new here; time-and-motion studies on worker productivity have been around since the rise of the "efficiency expert" a century ago. This approach has been used to help design consumer goods for ages, long before Proctor met Gamble, Sears met Roebuck, or Ben met Jerry. This is Survival 101 for anyone who hopes to exist longer than a K mart blue-light special.

In the computer marketplace, however, the axiom "The customer is always right" has always played second fiddle to "Technology is king." Who has time to find out what customers want or think, when the engineers have some new magic to show you?

(Of course, not every lesson from the land of consumer products is relevant to computers. Some computer companies have a knack for studying the consumer-product marketplace for insight and wind



VGA, Windows 3.0, Multi-tasked with Lotus 1-2-3, and Mac's MultiFinder running in the background. A 'hot key' brings the Mac desktop to the foreground.

Orange®386 MS-DOS® Coprocessor

Put a Networked PC *Inside* Your Mac

. . . With Unparalleled Network Compatibility

It isn't easy being a Macintosh® user with PC clones networked all about you. Especially if you must run an MS-DOS® based program whose data files are controlled by a network. However, with an Orange386 card *inside* your Mac, you can directly connect to any PC dominated network with complete compatibility.

How? Simply put an Ethernet, Token Ring, Arcnet card, etc., into a PC/AT slot located on the Orange386, and run your networked PC program. The Orange386 provides the ideal connection to the network, and its built-in Intel® 80386 processor and on-board RAM ensure that your MS-DOS programs run properly.

. . . Run Your Critical PC Software

The Orange386 is actually a second computer functioning independently *inside* your Macintosh. In VGA mode for example, you could be running an MS-DOS based program such as MS-Windows®, while simultaneously executing a Mac program. A 'hot key' moves you back and forth between platforms in a true dual processing environment.

. . . With Superior Hardware Performance

With Orange386 your choices are: 16 or 20 mhz SX processor, up to 16 MB RAM, optional Intel 80387 math coprocessor, PC serial port, PC parallel port, PC floppy disk port, and two PC/AT expansion slots for VGA, network cards, etc. The Orange386 offers virtually unlimited hardware flexibility. But more importantly, your MS-DOS software will execute up to 10 times faster with the hardware based Orange386 as compared to PC software emulation packages.

Orange Micro Inc.

"11 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim CA 92807
(714) 779-2772

© Orange Micro, Inc. 1991

CIRCLE 58 ON READER SERVICE CARD.

Power Up Your PowerBook



Trade-in rebate or case option available.

And run some real applications.

You've just purchased one of the most sought after notebook computers ever made—Apple's new PowerBook. You bought it for the freedom it affords you, but you're frustrated by its limitations. Although equipped with powerful System 7, the PowerBook's storage and memory configuration barely allows you to do anything beyond booting up.

Don't despair. Now you can achieve the maximum power today's advanced technology offers, with Microtech's new *Roadrunner* internal hard drives and *Coyote* memory expansion kits.

Roadrunner 40i and 80i internal drives feature state-of-the-art 2.5" disk technology with 19ms access times. *Coyote* memory upgrades, designed with low power pseudo-static RAM, are available in 2, 4, and 6MB configurations.

Power without dependability is no power at all. Since 1985, Microtech's *Commitment to Quality* has meant reliable products backed by the longest warranties in the industry. Our dedicated service and support teams are winners of *Macworld Magazine's Service Hero Awards* and ensure your satisfaction – guaranteed.

When you need the latest technology today with the confidence you will be supported tomorrow, call Microtech International and *Power Up.*

For your nearest dealer call: **800-325-1895**
International inquiries: 203-468-6223/Fax 203-467-8124

MICROTECH
INTERNATIONAL, INC.

©1991 Microtech International, Inc. 158 Commerce Street, East Haven, CT 06512. All trademarks or registered trademarks are the property of their respective owners. Microtech reserves the right to change specifications without notice.

CIRCLE 160 ON READER SERVICE CARD.

up bringing back precisely the least applicable lessons to Silicon Valley. I won't mention Apple by name, but don't be surprised if one of these days, we see TV ads featuring scantily clad, bronzed, sweaty Calvin Klein-esque bodies whispering to one another, "Finder. Experience it.")

At a recent impress-the-press seminar, Microsoft's Pete Higgins noted that the best product improvements are often the easiest to implement. The traditional 80/20 rule — that 80 percent of the work is done by 20 percent of the people, that 80 percent of the time you spend with a software package is spent with 20 percent of its features, that 80 percent of your frustrations lie with 20 percent of a program's quirks, and so on — is really more like a 95/5 rule.

In other words, it's amazing how little it takes to keep customers satisfied. But it's amazing how few companies will make even that small effort.

Every day Microsoft receives about 100 suggestions on ways to improve Excel. About 75 percent of those, according to Higgins, are usability-related. Microsoft logs each one — and ultimately implements a pretty healthy number of them.

Reading the mail may be a good source of royalty-free ideas, but that's just the beginning. To get a clearer picture of how people use Microsoft's products, the company's product managers now watch focus groups from behind one-way mirrors in the firm's new usability-testing lab, run by Dr. Mary Dieli. Microsoft has also developed special versions of its software packages that record everything you do — what commands you use and in what order you use them, what dead ends you end up at, and so on — so it can analyze how its products are used, abused, and misused, in excruciating statistical detail.

The Microsoft Works project team even went as far as to conduct a "follow me home" test. Members of the team went down to a computer dealer and waited for some poor unsuspecting customers to buy a copy of Works. Then they leapt out from behind a pillar of floppies in aisle 12 (writer's embellishment) and began asking the customers questions about why they had bought Works and how they planned to use it. If the customers were willing, the project team followed them home and watched them install the software and begin using it — all to determine what needed fixing.

Thanks to this kind of research by Microsoft (and others), several properties of highly usable software are emerging:

•Scalability: Give users only as much as they want and nothing more — except the knowledge that there's always more to tap into when they're ready. For example, store the on-line help out of sight but keep it easily accessible.

•Clarity: Use the right tool for the job. Don't be afraid to label buttons with unambiguous text instead of an oh-so-cute icon. Use menu commands that not only mean something but that also sound like

Find More Customers.



Guaranteed.

There's simply no easier, faster, or more cost-effective way to find more business-to-business prospects than with MarketPlace *Business*. MarketPlace is so effective that if you don't find more customers in 60 days, we'll give you your money back.

MarketPlace *Business* is a CD-ROM-based product that puts more than seven million U.S. businesses right on your desktop. You get information like business name, annual sales and number of employees, plus contact name and title, address and telephone number—the kind of information that helps you turn perfect strangers into perfect customers.

With MarketPlace, you can target prospects and create lists using criteria you set *yourself*—like geographic area, annual sales volume and number of employees. You can target specific industries using the most detailed business classifications available—8-digit SIC codes. (Even the U.S. government can't give you more specific business definitions.) And your dollar goes even further with MarketPlace lists because you can reuse any list as often as you want for one year —at no extra charge.

There's more: On-screen list preview. Market analysis. Instant list counts. One-step data exporting. Quarterly information updates. **But don't just take our word for it. Call us today at 617-894-4100 (x3122) and ask for your FREE MarketPlace demo diskette.**

☐ Send me a MarketPlace information kit including a MarketPlace demo disk.
Name_____
Company_____
Address_____
City/State/Zip_____
Tel:_____

Mail to: MarketPlace Information Corporation
3 University Office Park, Waltham, MA 02154
Fax: 617-894-1656 **Phone:** 617-894-4100 x3122

If you've been looking to increase your sales—your search is over.

Guaranteed.

MARKETPLACE

CIRCLE 61 ON READER SERVICE CARD.

Ultimate Power



For the Ultimate Machines.

Microtech's new **Nova N900i** is the largest capacity internal drive now available for the Macintosh in a 3.5" form factor. With an 11ms access time, the N900i complete with *Norton Utilities for the Macintosh, LifeGuard* by Visionary Software, and a five year limited warranty,* is the ultimate internal drive for the Macintosh Quadra 700.

Customize your Macintosh Quadra 900 by choosing high performance solutions from Microtech's new line of internal mass storage devices, like the 120MB **OR120i** rewritable optical drive or the **CD600i** CD-ROM drive. Or choose the **T2000i** 2GB DAT tape backup system with network compatible *RunningBACK* archival software. The **R50i** removable drive provides unlimited storage capabilities plus Mac and DOS file sharing through *TransPORT.* And optimize your internal storage capacities to 1.6GB with the new **Nova N1600i**.

As a power user, you can also count on Microtech to bring you the latest technology in memory solutions. With both economical 16MB composite modules and *low profile* 16MB SIMMs featuring 16Mb DRAMs, you can maximize your Quadra 900 to 256MB of RAM!

Power without dependability is no power at all. Since 1985, Microtech's *Commitment to Quality* has meant reliable products backed by the longest warranties in the industry. Our dedicated service and support teams are winners of *Macworld Magazine's Service Hero Awards* and ensure your satisfaction – guaranteed.

When you need the latest technology today with the confidence that you will be supported tomorrow, call Microtech International for *Ultimate Power.*

For your nearest dealer call: **800-325-1895**
International inquiries: 203-468-6223/Fax 203-467-8124

MICROTECH
INTERNATIONAL, INC.

©1991 Microtech International, Inc. 158 Commerce St., East Haven, CT 06512. All trademarks are the property of their respective owners. *The five year warranty is offered on drives sold, delivered, and used in the U.S. and Canada. Certain restrictions apply. Microtech reserves the right to change specifications without notice.

CIRCLE 159 ON READER SERVICE CARD.

they mean something users might be interested in.

•Direct manipulation of data: In Project, you can grab and stretch time lines. In Excel, dialog boxes for formatting charts appear when you click on the element you're trying to format. Word 5's drag-and-drop feature, which lets you move a word or sentence from point A to point B just by highlighting and clicking (instead of highlighting, cutting, clicking, and pasting), saves only a couple of mouse motions or keystrokes, but the difference is like night and day.

•Acknowledge the competition: If your archrival's product is the de facto standard in the marketplace, your product had better import and export files seamlessly with it. If your predominant competitor has established a command vocabulary or a particular jargon that's widely understood, use it (or at least offer a lexicon of translations). That's why Microsoft's Excel has a special help feature aimed at Lotus 1-2-3 users. In the same spirit, a forthcoming version of Excel will let you run 1-2-3 macros. (Acknowledging competition from within, Lotus has provided an option in the Mac version of Lotus 1-2-3 that makes the interface look exactly like the DOS version of the program, for those who're comfortable that way.)

Microsoft employs another tactic in its quest for usability: Technical-support calls for each product are charged against that product's bottom line. That gives the product's developers a clear incentive to do whatever they can to make sure users will never need to call tech support.

Microsoft is by no means alone in the quest for usability. DataViz, for example, has incorporated some of the features on the wish list I cited earlier: The latest version of its MacLinkPlus file-translation software sets the defaults by observing your usage patterns. Its splash screen and even its packaging are filled with concise information to help you get started with the software. DataViz's goal for MacLinkPlus is what every software company should strive for: to make the software so natural and transparent that you can focus on your work, not on the product.

Another product with a nifty usability-inspired feature is First Things First, from Visionary Software. The icon for this little activity-list manager is an attractive calendar/clock that sits on your desktop and expands into a to-do list when you double-click on it. Because you're always going to have this icon taking up valuable desktop space, it should at least earn its keep by letting you know the time and day.

One reason for the push for usability is that technology has advanced more rapidly than consumers' ability to fully embrace it. It's easier to sell customers on something they already know they need than to create a demand for something they've never heard of.

Now, if only Microsoft, DataViz, or Visionary Software would get into the VCR business . . . .

Make It Perfectly Clear with MacFlow

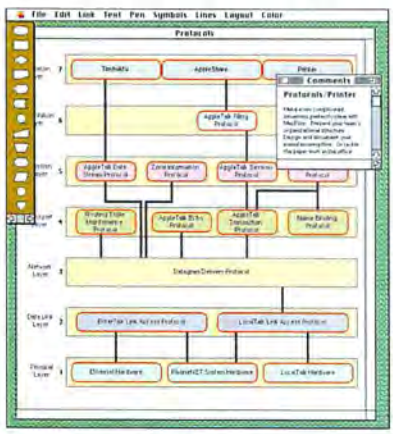


Make complicated situations perfectly clear with MacFlow. Present your team's organizational structure. Design and document your manufacturing flow. Or tackle the paper workflow in the office.

Instead of wasting hours drawing and redrawing flowcharts in a standard draw program, you can save time by creating your charts and diagrams with MacFlow.

Simply drag pre-drawn symbols onto a page and connect with lines. Next, supply text in symbols and/or lines. Change colors, line widths, you name it. Create right angled or Bezier curved lines quickly. Attach a page of text information to any symbol. Turn any graphic into a custom symbol. Reorganize as desired; lines stretch and stay attached to symbols. Changes are just as easy. Print your chart in black and white or color.

Export the chart to a desktop publishing program for proposals and reports or to a slide creation program and you're done!



MacFlow is ideal for designing and documenting any kind of flow relations. Creating charts and diagrams becomes so easy that you'll use it for all your projects.

MacFlow is available at quality dealers worldwide. Contact Mainstay for more information and a free demo disk.

Mainstay

5311-B Derry Avenue
Agoura Hills, CA 91301
(818) 991-6540
fax (818) 991-4587

71 rue des Atrebates
B-1040, Brussels, Belgium
322/733.97.91
322/732.32.46 fax

MacUser, July 1991, Pg. 76

CIRCLE 74 ON READER SERVICE CARD.

If you want the best color for the Macintosh, you have to be a NIT picker. Because NITs are a scientific measurement of brightness,* and quite simply, Seiko Instruments' CM 1445 gives you more of them.

The 13″ CM 1445 blazes with 100 NITs of brilliant color, a full 30 NITs more than the Apple® MAC II® RGB monitor's maximum of 70 NITs. Scientifically speaking, that's 43% brighter. On every Macintosh II, even the new LC.

That means you get 43% more punch out of passion pink. 43% more freeze in glacier blue. Your jalapeño green will be 43% spicier. In fact, for every one of the 16 million possible shades, our razor sharp Trinitron® high resolution tube delivers colors that are 43% more brilliant. So your bright ideas will look even brighter.

If you're picky about color, just use your eyes. You'll see that Seiko Instruments is the brightest choice you can make.

Call 1-800-888-0817 for our free Monitor Comparison Checklist and for more information on our full line of color monitors, color printers, and other peripherals.

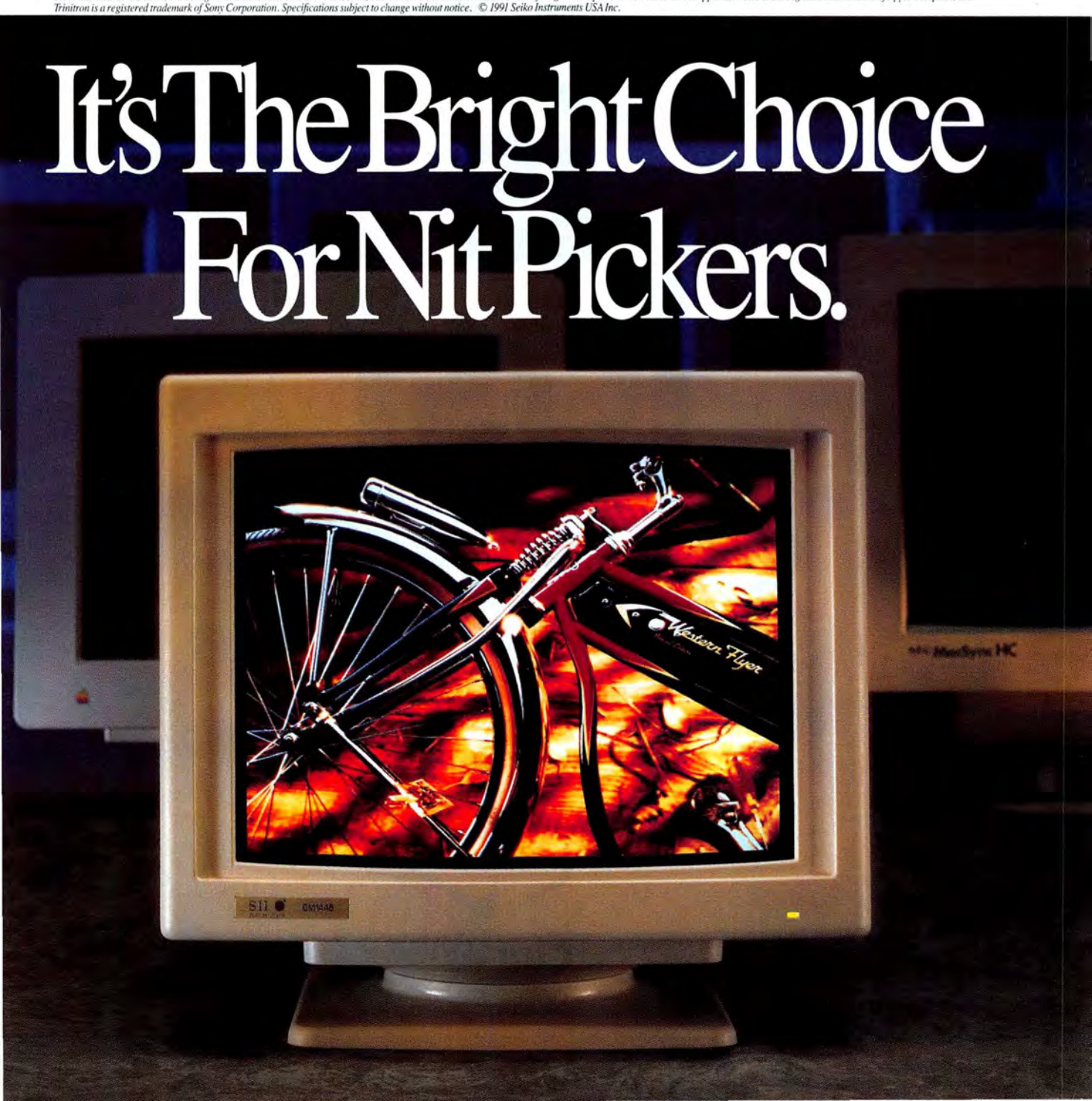
SII

Seiko Instruments

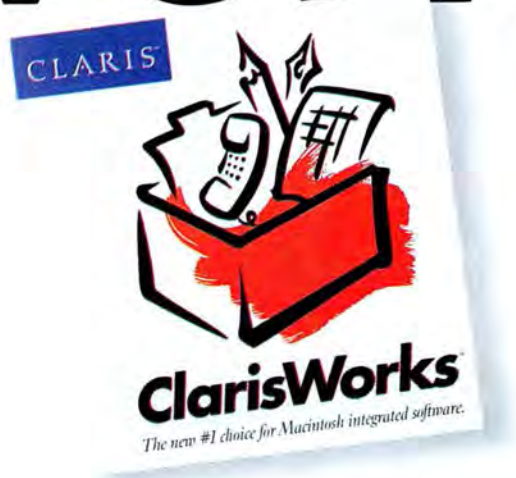
CIRCLE 125 ON READER SERVICE CARD.

*Seiko Instruments USA Inc., 1130 Ringwood Court, San Jose, CA 95131, (408) 922-5900. *NIT: a metric measurement of brightness equal to 3.426 FL to 1 NIT. Apple and MAC II are registered trademarks of Apple Computer, Inc. Trinitron is a registered trademark of Sony Corporation. Specifications subject to change without notice. © 1991 Seiko Instruments USA Inc.*

It's The Bright Choice For Nit Pickers.



Anything else is just work.



This is exactly the way you wanted Macintosh to be.

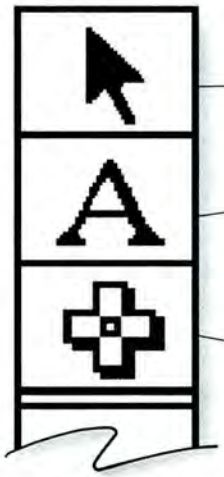
The power to effortlessly create documents with words, graphics, spreadsheets, and charts. Without running your mouse through a maze of modules.

Finally, all this functionality is immediately available on the screen in one application. Rather than a bunch of mini-applications, thinly glued together.

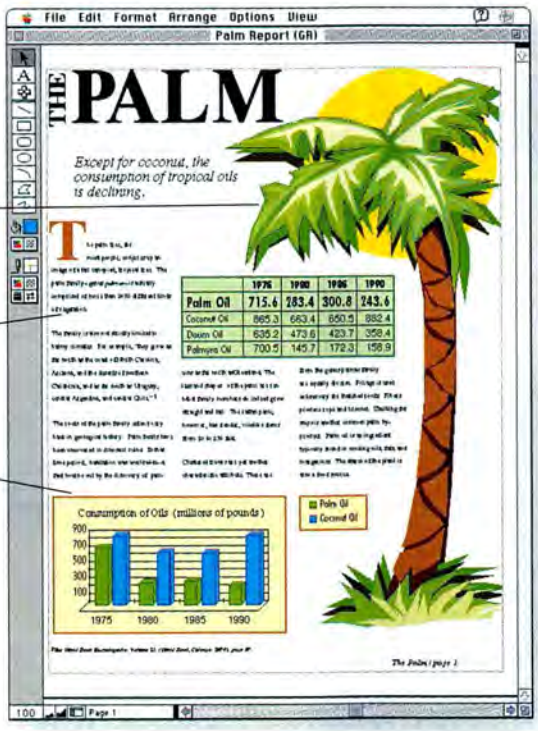
A level of integration you could justifiably call a genuine breakthrough.



ClarisWorks pulls out all the stops with a level of integration that's finally seamless.



om within a text document, you can click on e graphics tool and start drawing. Or click the spreadsheet tool and create a spreadsheet ght in the middle of your document. Whatever ol you select, its menu bar appears at the top.



'hough we simply call it ClarisWorks.™

What ClarisWorks software does is combine word processing, graphics, spreadsheet, harting, database, and communications in one onvenient package.

But here's the big difference: To add raphics, say, or a spreadsheet or a chart to a ord processing document, simply click the on-screen tool. You never have to leave what you're doing. Or get side-tracked by a new window.



For all its power, ClarisWorks is just 580K. So it never weighs down a PowerBook.

It's an arrrangement that, unlike anything else, produces more with far fewer moves.



A truly robust integrated package for fully exercising your options in word processing, graphics, spreadsheets, charting, database, and communications.

Not only are ClarisWorks tools always within easy reach, they're amazingly easy to grasp and handle. It's like getting our greatest hits—the most popular features of our leading MacWrite,® MacDraw,® FileMaker,® and Resolve™ programs.

ClarisWorks also doesn't hog RAM. Remaining nimble and quick on Classics and LCs and keeping portables, portable.

It's even remarkably simple to share anything you create. With our XTND technology, ClarisWorks can read and write to dozens of popular file formats, like AppleWorks,™ PICT, MacWrite II, and Microsoft Works.

Last, but certainly not least, ClarisWorks is a program you can build on.

The menus and commands in each ClarisWorks environment mirror those in our best-selling specialized programs. Enabling you to move to any one of them without starting over at square one. Which makes ClarisWorks the only integrated program with a true growth path.

So call to trade up from Microsoft Works for just a mere $99.

Or check out ClarisWorks at your authorized Claris dealer. And get the only works that isn't.

CLARIS®

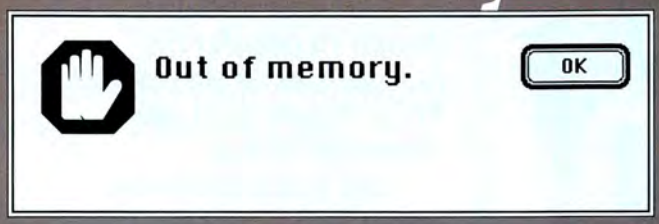
Simply powerful software.™



*For a cool, crisp $99 you can trade up from Microsoft Works. Call 1-800-544-8554, ext. 57, to cash in.**

'er also applies to Symantec GreatWorks, and MacVonk International Ragtime. Offer good in U.S.A. only. Expires January 31, 1992. Proof of ownership required. © 1991 Claris Corporation. All rights reserved. Claris, FileMaker, MacDraw and Write are registered trademarks and ClarisWorks, Resolve, and Simply powerful software are trademarks of Claris Corporation. AppleWorks and Macintosh are registered trademarks of, PowerBook is a trademark of, and Classic is a registered emark licensed to Apple Computer, Inc. (AppleWorks trademark licensed to Claris Corp.) Microsoft is a registered trademark of Microsoft Corporation. GreatWorks and Symantec are trademarks of Symantec Corporation.

Coming soon to a screen near you.



If you think the only way to avoid running out of memory is to avoid running a couple of your favorite applications, think again.

Think about all those memory-hogging fonts and sounds you've got stuffed into that bulging System File.

Then do what over 200,000 resourceful Mac users do every day.

Instead of closing your applications, open a Suitcase.™

Suitcase is the award-winning utility that lets you park your growing collection of fonts, DAs, FKEYs and sounds *outside* the System File.

Thereby giving you the maximum amount of memory for running more applications, building bigger documents and doing other useful things.

What's more, Suitcase compresses your screen font and sound files by up to 60%.

Thereby giving you that much more precious disk space to work with.

It even lets you put your screen and printer fonts on a server for all to share.

Thereby making each disk on the network that much more spacious.

The more resources you have – and the more organized you are – the more memory and disk space you'll save.

But whether your dividends are measured in megs or merely in Ks, Suitcase is guaranteed to save you gigabytes of aggravation.



Even if you're operating in System 7.

Because System 7 still stuffs your resources into your System File.

And System 7 still makes you close down all your applications and restart your Mac each time you install a new font.

Which is a real pain in the, uh, system.

Suitcase, on the other hand, gives you unlimited access to all your resources.

And total control over how you organize them.

Each suitcase can pack up to 800 fonts, 64 DAs, and any number of FKEYs and sounds.

You can group suitcases into sets, then summon all the luggage that belongs with a particular project at the click of a mouse.



Can't remember the difference between Versailles and Monaco? Not to worry. Suitcase displays your typefaces right in the menu.

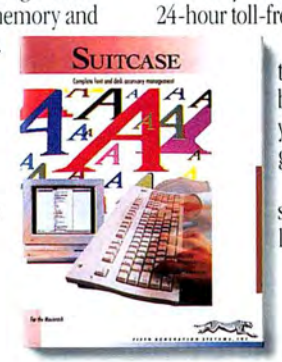
Tips are optional. But here's one for those of you who find font ID conflicts even more irritating than running out of memory.

Get Suitcase. It eliminates them.

Call us at 1-800-666-2904. We'll tell you about our vaunted 24-hour toll-free technical support.

We'll also tell you that Suitcase is backed by a one-year money-back guarantee.

So you can be sure this baggage will live up to its claims.





FIFTH GENERATION SYSTEMS, INC

CIRCLE 103 ON READER SERVICE CARD.

GUY KAWASAKI

Masters of Macintosh



Be honest. Are you a Macintosh master? Here's how to find out if you are and how to make the grade if you aren't.

I don't believe in the tooth fairy, I don't believe that the check is in the mail, and I don't believe in the Apple/IBM alliance. Still, even if this alliance never yields a product, it will have one immediate, powerful effect: It will legitimize Macintosh.

Now when Apple employees, dealer salespeople, and Macintosh evangelists face the objection that Macintosh is just a "cute, graphics toy computer," they can retort, "If it's GUI enough for IBM, it's GUI enough for you." This is worth a lot.

Let's face it — this means that a lot of novices, beginners, and Great Un-Macintoshed Masses are going to be using Macintoshes very soon. This column is for them: It explains how to master a Macintosh. I don't expect you to need it — simply pass it along to your friends.

Definitions

Macintosh users come in three varieties: hackers, obsessives, and masters.

Hackers buy or pirate every product, install every utility, download every shareware product, and reformat their hard disks once a day. They go to product demonstrations and try to stump the speaker with inane questions such as "How many rules of Codd and Date's Relational Model does your database adhere to?" Hackers describe System 7 this way: "It's terrific. I only crash twice a day." Hackers don't achieve mastery, because using a Macintosh becomes an end rather than a means.

Obsessives are hackers with less brains. If they were athletes, they would buy $300 designer workout suits but never sweat. They read every book, they listen to all the audio training tapes, and they read the Read Me First! documents. Initially, their Macintosh experience is so wonderful that they think that they've mastered Macintosh in the first week. Then they hit a wall, get frustrated, and give up — blaming Macintosh, not themselves.

Masters understand that using a Macintosh is a means to an end. They understand that mastering a Macintosh is like climbing a series of hills and that each one gets you a little farther up the power curve. Their path is analogous to that of martial-arts experts who don't "arrive" but constantly improve and raise themselves to a higher state.

Diagnosis

Before we get started, let's determine which kind of Macintosh user — hacker, obsessive, or master — you are. Sharpen your pen-based input device, and take this short quiz:

1. Which statement best describes you?

•I can't get any work done. I'm still looking for the perfect application or perfect next version so I can finally get started. When it arrives, I'll start.

•Even though I've spent more than $5,000 on books, training, and tapes, I still can't use a Macintosh very well. It's a stupid computer after all . . . .

•I like my Macintosh OK. It's not perfect, but it helps me get the job done. I have to go right now to make some bank deposits.

2. When a software developer announces a new version of an existing product, what is your reaction?

•Call the developer and demand that you become a beta site or you'll switch to a competitor's product.

•Call Personal Training Systems and MacAcademy to find out if there are tapes or classes for it.

•Smile to yourself for a second before going to the bank to make a deposit.

3. When you heard about the Apple/IBM alliance, what was your reaction?

•Called John Sculley to offer your services as a consultant to help design the next computer architecture, because you have ten years of C-programming experience.

•Went to Nordstrom to buy a new three-piece suit and a yellow tie so you can be properly dressed to use this new computer.

•Laughed uncontrollably before going to the bank to make a deposit.

If the first choice for each question describes you, you are a hacker. If the second choice describes you, you are an obsessive. If the third choice describes you, you're either a master or a liar.

The Road Less Traveled

Here is how to travel along the road to Macintosh mastery:

1. Set your expectations correctly. It takes about 15 minutes to set up a Macintosh, but it takes about two years to master it. When you first start using a Macintosh, you swallow huge gobs of gains in productivity, creativity, and enjoyment. The size of the gains, however, gets smaller and smaller as you achieve mastery. Using a Macintosh is a lot like skiing: It takes only about a day to get started but years to get good.

2. Go with the flow. The process of mastery is not only long but it is also cyclic. There are



A PERMANENT FILE & DISK ERASURE UTILITY FOR THE MACINTOSH™

SHREDDER™ is designed to keep your confidential files safe from recovery. Permanently and irrevocably deletes files from your disks. Shreds files immediately or automatically at any time you choose, without interrupting your work. When sensitive information truly needs to be erased from your hard disks, floppy disks, and networked disks, the trash can isn't enough...you need SHREDDER!

COMPLIES WITH U.S. GOVERNMENT STANDARDS

TOLL FREE 1-800-554-2973

© DLM Software Inc., San Diego, CA 92130 FAX (619) 481-0816
Macintosh™ is a trademark of Apple Computer, Inc.
CIRCLE 34 ON READER SERVICE CARD.

times of great satisfaction and great frustration. When you are frustrated, keep working on it until you bust through to the next level. Expect setbacks along the road to Macintosh nirvana. Sometimes you'll even think that you're regressing and getting worse at using a Macintosh.

3. Be bold: Experiment and play with your Macintosh. Don't worry about making mistakes or hurting your Macintosh. It really takes a lot of effort to damage your Macintosh, applications, or files. If you're curious about what will happen if you try something, go ahead and try it. You may lose some work, but even that will be instructive. If you don't take chances, you won't know, so try things such as turning off your Macintosh while it's printing. You'll find that a Macintosh is almost bulletproof.

4. But don't be stupid. Although it is difficult to damage your Macintosh, that's no reason to go looking for trouble. If you suspect that you may be doing something dangerous, back up your files or ask other people's opinions first. I would draw the line at doing anything to your hardware, so be very careful when you "open the hood." You can harm your Macintosh or get a real charge (electrical, that is) out of your Macintosh.

5. Read voraciously. I swear that more people are writing about Macintosh than using it. There are hundreds of books about Macintosh and Macintosh software. Some of them are get-mediocre-quick and merely repeat what the manuals say. Many, however, provide insights that the authors have gained over years of Macintosh mastery.

6. Don't blame your tools. A craftsman doesn't blame his tools, so don't blame your Macintosh. A sushi chef doesn't blame his knives. A painter doesn't blame his brushes. A writer doesn't blame Microsoft Word. The software may be slow, buggy, or missing features, but the blame is ultimately yours. Blaming your tools is wimpy: Fundamentally, you either do a job or you don't.

7. Join a user group. User groups are Apple's unpaid evangelists, providing technical and emotional support for Macintosh users. They can help smooth out the road during your Macintosh journey. Almost every question you may have about a Macintosh has probably been answered before, and going to a user group is a good way to meet people with the answers. There are more than 1,000 user groups located around the world. To find one in your area, call Apple's information line at (800) 538-9696, ext. 500. If you join a user group and I'm there doing a demo, don't ask me any inane hacker questions.

8. Join an electronic-mail service. There are more than five million Macintosh users out there. At least a thousand of them know more than you do, and these people live (literally *live*) on E-mail services such as America Online and CompuServe. If you join a service, you can post questions and people will answer them. The answers aren't always right, but then, what do you expect without charge? To get information about America Online, call (800) 827-6364. To get information about CompuServe, call (800) 848-8199.

9. Don't buy the first version of software. Have you ever noticed that most new software ships in early January or early August? That's right around a Macworld Expo. Did you think this was a coincidence? It's not. Software companies rush to ship software at these times, which lowers quality control. (Corollary: If a company was going to ship a new product at Macworld and doesn't, it really had a lot of bugs.) Trust me: Let other people test new products; keep working, and get the .01 version.

10. Don't upgrade too fast either. Have you ever noticed that most new versions ship in early January and August too? You can see where I'm headed. Upgrading is like getting married: I've never heard of anyone getting married too late, but I've heard of many people getting married too early. Trust me: Let other people test new versions; keep working, and wait for the bug fix. I'm still using, for example, System 6.0.5.

11. Save your shekels. From the moment you get your Macintosh, start saving money for your next Macintosh (or maybe another personal computer). Personal computers change rapidly, so you'll probably want to buy a new computer or upgrade your current one in 12 to 18 months. Accept this as fact, and start saving for your next purchase. Sometimes achieving mastery means having to fork over more dough.

There you have it: how to master the use of a Macintosh. The road is long — never ending may be a better description — but worth it. What other "thing" can bring you so much enjoyment, productivity, and frustration? Using a Macintosh is just about the most fun you can legally have with a machine.



Bernoulli® and SyQuest . . . each is trying to take over the corporate world with their special technology for removable media. Who will be the winner? You will, if you choose the ETC DataPort™.



Besides offering SyQuest and Iomega drives as options in the ETC DataPort, ETC Peripherals provides a full line of storage peripherals and memory upgrades for your Macintosh®.

Start with the DataPort cartridge. It's a 3 ½" Winchester drive in a removable cartridge. Just like removable disks, the DataPort cartridge can be removed for storage, or carry it to another location. Better than a removable disk, our cartridges can access your data faster, and it's available in greater capacities ranging from 105 Mb to 1.0Gb. And, with our exclusive ETC Tools, you can even combine several smaller drives into a single, super volume—up to 2.1 Gb!

Next pick your system. . . the DataPort Twin with 2 drives or the Tower with 4. Fill the slots with DataPort cartridges and either a Bernoulli or SyQuest drive. Need something special? We can configure any combination you need.

Don't get caught on the wrong side of a power struggle. Play both sides. Call *800-882-2863*.

ETC® Peripherals

Innovation on an Economical Scale

ETC Peripherals, 5426 Beaumont Center Boulevard, Suite 300, Tampa, FL 33634, (800) 882-2863, (813) 884-2863, Fax: (813) 888-9535

The DataPort is protected by patents 4,941,841 and 308,841. All brands and product names are trademarks or registered trademarks of their respective holders.
© 1992 Exportech Trading Corporation, d.b.a., ETC Peripherals

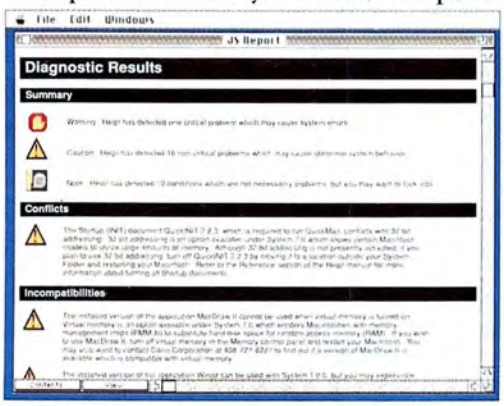
CIRCLE 63 ON READER SERVICE CARD.



Used Regularly, Prevents Unwanted Conflict Build-up.

Why wait for your Mac to bomb when you can keep it running smoothly with a little bit of Help!™?

Help! pinpoints configuration conflicts, incompatibilities, and other problems and shows you how to fix them right at your desktop. You'll eliminate system errors, lock-ups, and system bombs.



Help! quickly pinpoints system configuration problems and shows you how to solve them.

Help! is the first intelligent application with a built-in knowledge-base* of problem information covering over 2,000 software programs, INITs, cdevs and hardware products. It's the only Mac product that lets you solve these problems at your desktop: *Startup document conflicts • Incompatibilities between hardware, system software and applications • Memory problems • Improperly installed files • Duplicate or damaged files • Operating system problems up to and including System 7.0.*

The sooner you get Help! the sooner your Mac will run at peak performance. Single user version just $149. To order call:

1-800-873-3494

Outside the U.S.A. Call:
1-813-620-3494
Visa/MC/Amex



Help!™

Every Mac User Needs It.

CIRCLE 49 ON READER SERVICE CARD.

*Help! utilizes SMART Teknology™ from Teknosys.

Teknosys inc.
3923 Coconut Palm Drive, Suite 111, Tampa, Fl. 33619

MICHAEL SWAINE

Newton's Virtual Apple



Could Newton's apple be replaced by Apple's? There's a scientific revolution in the works, and it's going to start on a desktop, not in a laboratory.

In my column last October, I described Wolfram Research's Mathematica in these terms: "Mathematica *is* . . . math. That is, it's a simulation of some of math . . . ." It may have read as though I were saying that a computer simulation *is* the thing being simulated. I was, almost, and it is, almost. Simulation is a very important direction in computer software, and there are some good examples of simulation on the Mac.

I ended that October column by saying, "Now all we need is Physica, Biologica, Chemica, Philosophica . . . ." The folks at Knowledge Revolution in San Francisco met the challenge, sending me a copy of Interactive Physics. This program, which earned a 1989 *MacUser* Eddy award for best education/exploration program, was reviewed in *MacUser* in April 1990 (page 65), and has a new version out now, "is" two-dimensional Newtonian physics. Its world contains user-specifiable gravity and air resistance; objects with user-specifiable elasticity, position, size, shape, density, and velocity; and ropes, springs, dampers, and constant forces to hook up to the objects.

When you set up an experiment by dragging objects and filling in parameters in dialog boxes, objects collide and fall and bounce in accord with the specified parameters. If you choose the right parameters, your simulated experiment will normally work just like the corresponding real-world experiment. There are some edges to this simulated world, and if you step over, the simulation breaks down badly — solid objects pass through one another, that sort of thing. But it's not too hard to skirt the edges.

You can watch the simulation run, you can record and play back a "tape" of the run, you can measure effects with various meters, and you can export the results of experiments to other applications. Prentice-Hall liked Interactive Physics enough to agree to bundle a modified version with all of its college-level physics textbooks.

Mathematica, Interactive Physics, and other programs that realistically simulate parts of the universe are worth a look not only for what they do but also for how they do it. There is a fundamental difference between a program that simulates a part of physics and one that demonstrates a part of physics. It's a question of trust. A simulation implements the fundamental principles of a domain and uses them to derive the appropriate behaviors, rather than just programming in the behaviors. If the principles are well chosen, the simulation acts exactly like the real thing. As a result, you can go ahead and try things that the designers of the program never thought of and you can believe the results you get.

And you do believe them. After a few checks against reality, you quickly learn to trust programs such as Mathematica and Interactive Physics. In fact, if your simulated falling apple doesn't act just like your real falling apple, you tend to question your real-world experimental procedure before you question the program.

And rightly so.

Two-Bit Expertise

But is this good? Shouldn't students be playing with real pendulums? Setting aside the pedagogical issue, should *scientists* be relying on simulations? Because working scientists are, more and more often, using computer simulations in their work, doesn't this breed an unhealthy distancing from the data, a suspect reliance on the computer?

In the words of one observer of science, "This new breed . . . runs off to a mainframe whenever the going gets tough and lets a few million microchips get them out of hot water." At the risk of sounding like Dr. Science, I took a one-quarter course on the history and philosophy of science back in grad school, so I figure I also qualify as a two-bit expert on the goals and methods of science. Here's some two-bit expertise.

All instruments distance the observer from the subject matter, and scientists always use instruments. Think of the microscope, a couple of pieces of glass that distort vision and that a Dutch naturalist named Antonie van Leeuwenhoek claimed would enable you to see little animals swimming around in your drinking water. It took a while to sell that one. Or the electron microscope, or the radio telescope, or the kinds of "observations" one gets out of a particle accelerator. Science gets farther and farther from just looking in the horse's mouth as it employs increasingly subtle instruments. Each such instrument embodies a theory that justifies its use. It may be an uncontentious theory of visual perception, or of optics, or of red shift, or of quantum mechanics — but there's a theory.

Simulations at least have the courtesy to be explicit about their theories. In fact, a simulation *is* a theory. In the spring of 1987, when Allen Newell delivered the prestigious William James

Power Up with Newer

...the Innovators in Power & Performance for Macintosh computers.



Macintosh Powerbook™ Memory Modules

Add 2MB, 4MB or 6MB to get a full 8MB of total RAM in all Powerbook models 100, 140 or 170.



NEW Macintosh Classic™ II FPU-882 Card

FPU-882 Math coprocessor card handles most applications from 2 to 5 times faster.



NEW Low-Profile 16MB SIMMs for the Macintosh Quadra™ 700 & 900

Newer's specially designed low-profile 16MB SIMMs offer up to 68MB in the Quadra 700 and up to 256MB in the Quadra 900.

Use up to 1024MB of application memory with MacSWELL™ INIT

Only Newer Technology offers this System 7 application memory solution. MacSWELL modifies the standard GET INFO box. Bundled exclusively with all of our 16MB SIMMs.

Ask about

- SCSI II Dart ultra-high-speed RAM Drive.
- Complete line of 4MB, 8MB and 16MB SIMMs.
- fx/Overdrive and Quadra/Overdrive accelerators.
- Ask about our 16MB SIMMs for other Macs.

All product names are trademarks or registered trademarks of their respective companies.

MACWORLD EXPOSITION BOOTH #2710

1-800-678-3726
Fax (316) 685-9368

Newer™ TECHNOLOGY

7803 E. Osie, Suite 105
Wichita, KS 67207

INNOVATORS IN POWER & PERFORMANCE

CIRCLE 44 ON READER SERVICE CARD.

Lecture Series at Harvard, he claimed that psychology, after a century of muddling about in broad philosophizing and narrow theorizing, was finally ready for unified broad theories of cognition — that is, of all aspects and levels of mental activity. And he presented the first candidate for such a unified theory, a simulation called Soar. Doesn't run on a Mac. Yet.

Simulation can be as important to science in the near future as observational methodologies and theory construction are today. That's a radical statement, because science today is nothing *but* observational methodologies and theory construction and grant proposals, but I think the assertion is justified. A simulation embodies a theory and provides the means to generate the concrete predictions needed to test it. Modern science is, after all, young as human artifacts go, arguably having gotten its start by obtaining the seal of approval from Francis Bacon in the 17th century. Physics is so new that when Richard Feynman was looking for work as a physicist just before World War II, he was considered a novelty.

Simulations aren't going to go away. Increasingly, they are where science is heading. Among the advantages of simulations are the ability to go where no scientist can go physically; the ability to check things faster; and the ability to *visualize* concepts more immediately, which is very important for learning. Also, simulations save money on equipment, experimental subjects, and insurance — not a trivial issue these days.

Cheaper Educational Software

So simulations can save some money. But software itself is costly, and scientific software will always have a limited market. Commercial software written for that market will therefore always be more expensive than comparable products for broader markets.

The problem will be solved in a way that is already obvious: Scientists will write their own software. They're already doing it, but Mac software is notoriously hard to write. What is needed are programming environments for people who are not professional programmers, and to make these work, software must become more modular. There are several ways to do this, of which the object-oriented approach is the one currently getting the most attention.

Apple events, the set of protocols for System 7 interapplication communication,

Prentice-Hall liked Interactive Physics enough to agree to bundle a modified version with all of its college-level physics textbooks.

is an object-oriented approach. Apple events should be very useful for developing scientific software, according to William Rabinovich, who discussed the matter in the third-quarter-1991 issue of *SciTech Quarterly*, the journal of the Macintosh Scientific and Technical Users Society. Apple events can be thought of as consisting of objects, or generalized data structures, and verbs, which are messages sent from one application to another (from a client application to a server application), requesting that the server application perform some action it knows how to perform.

The key to making Apple events useful is to define suites of objects and verbs that serve a variety of purposes. For example, a suite of scientific Apple events needs to be developed, and work is underway to do this. Rabinovich gives high marks to Apple's efforts to develop a generalized table format that will allow tabular data to be moved easily among applications, something that would be very useful in science.

Apple events also support distributed processing, which could let, say, a molecular-modeling package run on a IIfx, which can do fast numeric calculations, while a molecular-display package runs on a IIcx with a graphics accelerator. The two could shuffle data and messages back and forth when needed, and both machines could run at full speed. Each program could be written to do its single task well, which ought to mean more reliable and cheaper applications.

Someday, an object-oriented environment such as Pink may let scientists exchange, across machines and laboratories and national boundaries, objects that encapsulate features and behavior of real-world objects in a realistic way: virtual atoms, molecules, genes. The question arises, Will these objects then constitute a simulation, and if so, what exactly will that simulation *be?*

The face behind the name.

"I designed Managing Your Money® to do everything I need. The idea is to make Managing Your Money your financial control center — to have everything you're ever likely to need in one place, working as one."

Andrew Tobias, Financial Expert

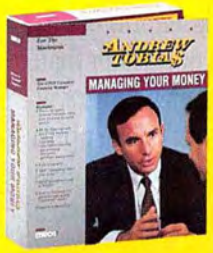
SEPTEMBER 1·9·9·1
WINNER OF
MacUser MAGAZINE

EDITORS' CHOICE · NOMINEE · MACUSER · 1991

SYSTEM 7 COMPATIBLE!

New Andrew Tobias' Managing Your Money® Version 4.0! The ONLY financial software that does it all.

- Budgeting
- Checkwriting
- Electronic bill payment with CheckFree® system
- Tax planning
- Teams up with MacInTax™ for tax preparation
- Portfolio management
- Net worth calculator
- Insurance
- Retirement planning
- College planning
- Loan amortization
- Full business features
- Exports to Microsoft® Excel, Works, and most spreadsheets



Why not explore Managing Your Money for yourself?

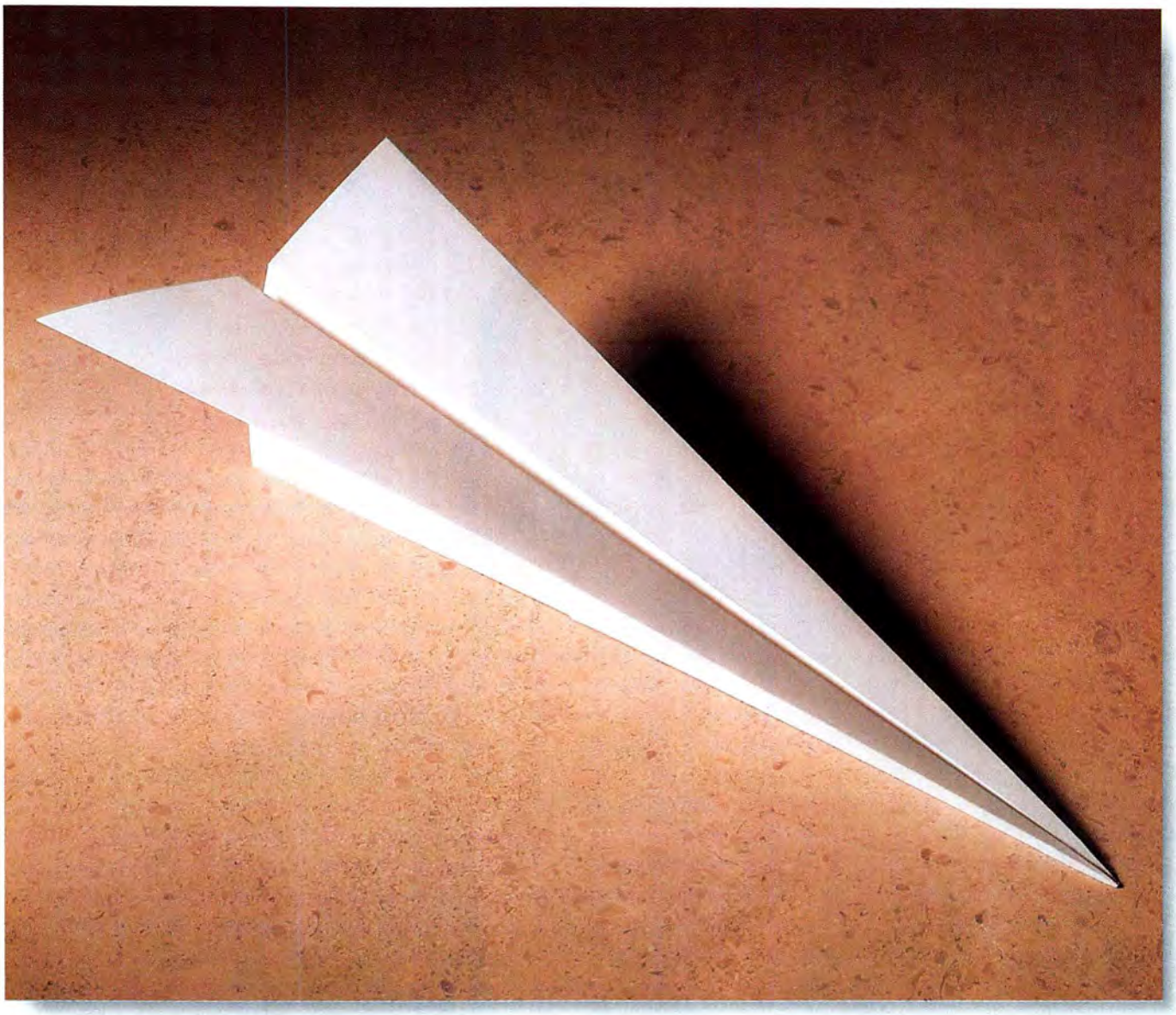
DEMO

For a FREE interactive demo disk call **1-800-288-MECA.***
You won't be disappointed.
CIRCLE 161 ON READER SERVICE CARD.

* Offer good while supplies last.

meca®

A92017
© 1991 MECA Software, Inc.
55 Walls Drive
Fairfield, CT 06430-0912



Now there are two ways to m

The new LZR 1560 from Dataproducts is a complete departure from ordinary laser printers. At 15 ppm, it's not only faster than most office laser printers, it can also deliver output up to 11″ x 17″. Which means it can print spreadsheets, illustrations—any two-page layout—in the time it normally takes to process a letter-size page.



300 and 400 dpi offers greater half-tone range and sharper images.

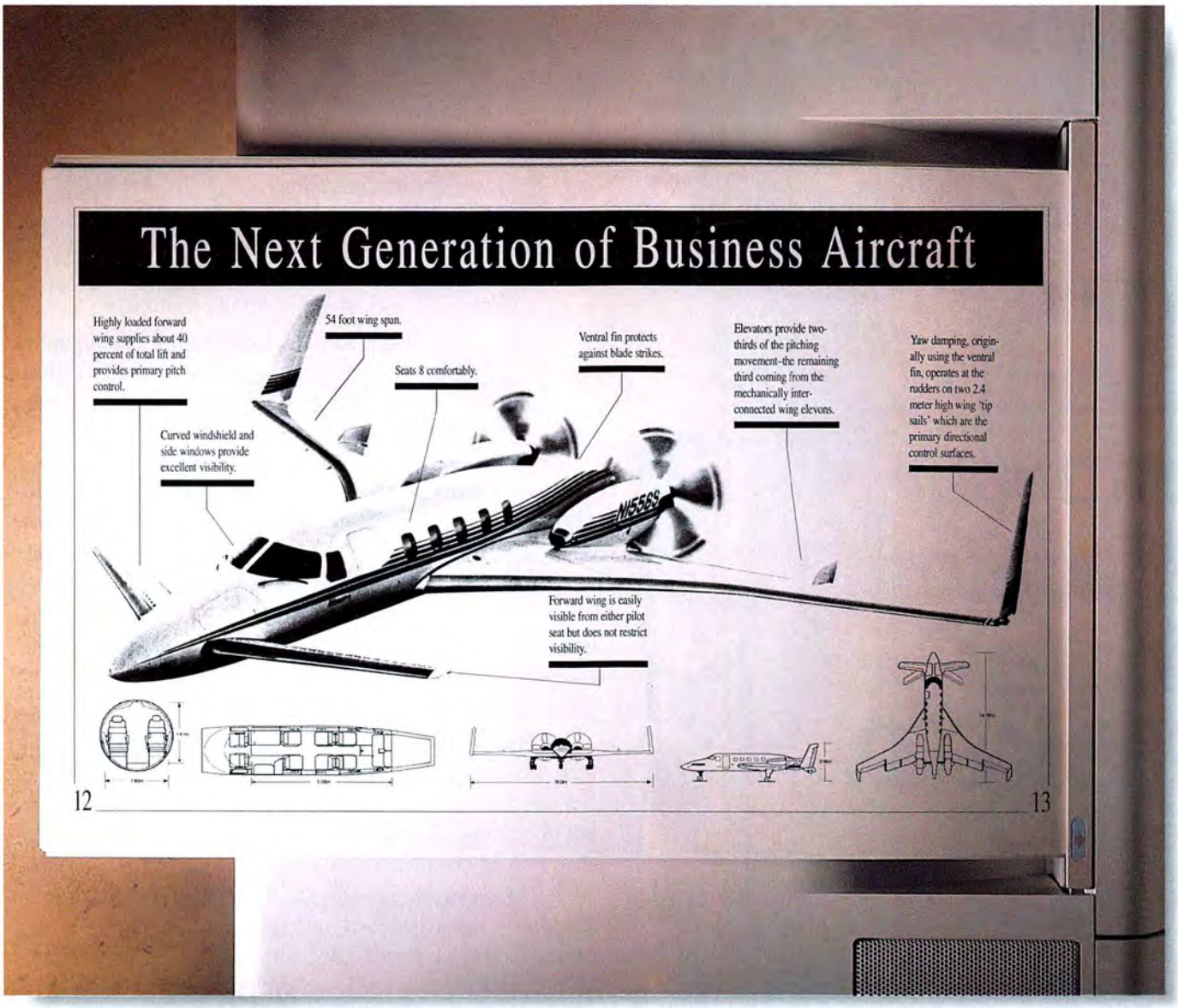
This kind of performance is the result of combining two powerful innovations. Namely, a RISC-based controller, for quicker rendering of fonts and graphics, and PostScript® Level 2, an advanced printing language that delivers PostScript's vast graphic capabilities faster than ever before.

But in addition to doing its job faster, we've designed the LZR 1560 to do a number of things better.

Take print quality, for instance. When you want greater resolution, other laser printers give you "enhanced" 300 dpi. Ours, on the other hand, gives you *true* 400 dpi. So you get outrageously crisp and clean text and graphics. And because it's software selectable, you can easily switch back to 300 dpi with just a click of the mouse.

Now that we've got you thinking fast and sharp, start thinking big. Because the LZR 1560 can let you take full advantage of the larger format with no sacrifice in productivity. Imagine creating two-page desktop publishing layouts without cutting and pasting.

© 1992 Dataproducts Corporation. Dataproducts and its associated logomark are registered trademarks, and its tagline and LZR Series are trademarks, of Dataproducts Corporation. All rights reserved. All other product and brand names are trademarks



e an 11″ x 17″ sheet of paper fly.

POSTSCRIPT® Software From Adobe

Using PostScript Level 2 provides more power and design elements in your documents.

Or finally getting your full production timeline on a single page that has *legible* 6-point type. Even your spreadsheets can be better presented in ledger size.

On top of that, the LZR 1560 gives you more workspace with the smallest footprint of any 11″ x 17″ laser printer.

If a printer that can do all this sounds like a good idea to you, contact 1-800-334-3174 for the name of your nearest Dataproducts dealer. And discover why the LZR 1560 is the only way to fly.

Dataproducts

The high performance printer people.™



11″ x 17″ Laser Printer Market Snapshot

Manufacturer/Model	Resolution (DPI)	Speed (PPM)/Processor	Page Description Language	List Price
Dataproducts LZR 1560	**300x300 OR 400x400**	**15 Weitek 8200 RISC**	**Adobe PostScript Level 2 & PCL4**	**$5,695**
LaserMaster 400XL	400x400	20 None	Microsoft TrueImage	$9,995
QMS PS2210	300x300	20 Motorola 68020	Adobe PostScript	$9,995
Varityper VT600W	600x600	7 Motorola 68020	Adobe PostScript	$16,995
DEC PrintServer 20	300x300	20 N/A	Adobe PostScript	$25,247
ATI LC6020	300x300	20 Motorola 68020	ATI LaserDrive & PostScript	$15,995

Sources: Dataquest and Dataproducts Corporation, 1991

CIRCLE 75 ON READER SERVICE CARD.

or registered trademarks of their respective holders.

VideoSpigot

Now, pour video directly into your Macintosh for less than $500.



For the first time, getting digital video into your Macintosh® has become a reality. VideoSpigot™ from SuperMac™ makes it easy. Practical. And, most important, affordable.

VideoSpigot is today's starting point for QuickTime™ moviemaking *on any Macintosh*—from the LC to the Quadra™ 900. It lets you pour footage from a TV, camcorder, laserdisc, or VCR right into your hard disk or optical cartridge, instantly turning each frame into digital data. Because VideoSpigot offers the industry's *best QuickTime-compatible software video compression*, it puts more video—with much higher image quality—on disk than any other product.

You can actually put as much as 30 seconds of video onto a 1.4 MB floppy disk—or an *hour or more* of footage on an optical disk or CD-ROM!

Its another industry breakthrough from SuperMac—"spigoted" video in QuickTime's file format. Video you can treat *just like text and graphics*. Video you can import into QuickTime-aware applications. Video capable of transforming presentations, storyboards, newsletters, and training materials into compelling, dynamic documents.

Starting at under $500, VideoSpigot is the super-affordable way to get into QuickTime moviemaking. For true color and large-screen support, consider SuperMac's VideoSpigot Pro. See your Authorized SuperMac Reseller today, or call 1(800) 334-3005 for the dealer nearest you.

See us at
MacWorld
San Francisco
Booth #1017
Moscone Center

SUPERMAC™
The SuperSource for Video

FREE
ADOBE PREMIERE™
DIGITAL MOVIE-MAKING TOOL
$495 VALUE
LIMITED-TIME OFFER
SEE YOUR RESELLER FOR DETAILS



© 1993 SuperMac Technology. SuperMac, SuperMac Technology, and VideoSpigot are trademarks of SuperMac Technology, Inc. Macintosh is a registered trademark and QuickTime and Quadra are trademarks of Apple Computer, Inc. Adobe Premiere is a trademark of Adobe Systems Incorporated.

CIRCLE 131 ON READER SERVICE CARD.



More CD-ROM: Wading through a CD-ROM can be like searching through the Library of Congress — one book at a time. But Peter Winer, of MORE-outliner fame, has created a CD-ROM interface that looks and acts like an outliner, making navigating through reams of data easy. So far, Winer's work is available only as the front end to the Stat!-Ref CD-ROM Medical Reference Library ([800] 755-7828 or [307] 733-5494), but there may be more to come.

By Russell Ito



How Green was my valley: It's a New Age in Silicon Valley. IBM has discovered the value of a graphical interface, Apple is talking about price/performance, and several companies have decided that EC (environmental correctness) is definitely part of the New World Order. Apple has decided that boxes of color are EC, so the company has abandoned its familiar white packaging in favor of brown kraft boxes that can contain more recycled fiber. Apple is also reducing the amount of foam used inside the boxes. For example, the foam box that used to enclose the manuals and disks will be eliminated in favor of a brown cardboard box. Foam will still be used to cushion Apple's CPUs, however. Apple has also announced a battery-recycling-and-disposal program for Portable and PowerBook batteries. These batteries die in about two years, but unfortunately, they can't be buried, because they contain heavy metals such as lead and cadmium. Under the new program, users can take their dead batteries to an Apple service center, which ensures that the batteries are properly recycled or disposed of — all at Apple's expense. Hewlett-Packard (Cupertino, California; [800] 752-0900, ext. 1872) has also gone green. The company now has an aggressive recycling program for its laser-printer cartridges. HP is including a prepaid UPS return slip with its replacement cartridges. Simply put your used cartridge into the box, seal it up, and affix the label, and HP does the rest. The returned cartridges are completely disassembled, and the parts are either reused or melted down to become raw materials. As a further inducement, HP's cartridge vendor, Canon, has committed to donating 50 cents to the National Wildlife Federation and the same amount to Nature Conservancy for every cartridge recycled.



Up to Date . . .

Intouch, Advanced Software's PIM, has been upgraded to version 1.1 and now includes one-step envelope printing. Intouch Network uses a client/server architecture for shared data files with minimal network traffic. (800) 346-5392 or (408) 733-0745. Intouch, $69.95; Intouch Network, $199.95. GeoQuery, GeoQuery Corp.'s demographic-analysis package, is now in version 3.0. New features include U.S. interstate highways plus full System 7 support, including two-way IAC links with 4th Dimension. (708) 357-0535. $395. GCC Technologies has upgraded its BLP printer line with the introduction of an 8-ppm version of the BLP Elite, complete with AppleTalk and Adobe's PostScript. (800) 422-7777 or (617) 890-0880. $2,099.



In Focus' LitePro color LCD projector combines a light source and an LCD panel in a single enclosure, so you don't need an overhead projector for your presentations. An active-matrix model, the TVT 6000 was due in January.

Projected Presentations

LCD projection panels are great for making presentations. They're compact; light; and without an overhead projector, absolutely useless. Realizing this, In Focus Systems has paired some light sources and LCD panels in the same enclosure to produce three LCD projectors.

The LitePro series, consisting of the LitePro and the LitePro LS, pack a 400-watt light source and a color LCD panel into a single 19-pound enclosure that's capable of projecting a 640-x-480-pixel image with as many as 4,913 colors. The LitePro takes its video signal from any standard 640-x-480-pixel Mac video source — either a card or internal video. The LitePro LS can even eliminate the need for a computer. With In Focus' LiteShow presentation-management system, which is built in to the LitePro LS, you can capture your presentation's slides; put them on a disk; insert the disk into the LitePro LS; and then arrange the slides, add transitions, and play the whole presentation back directly from the LitePro LS — without an attached computer.

And for even-more-sophisticated presentations, In Focus has created the TVT 6000, an active-matrix color-LCD projection system that can accept video input from either composite-video sources (such as a VCR or a videodisc player) or from a computer equipped with a scan converter that can output NTSC video. Weighing in at 24 pounds, the TVT 6000 can project an image measuring up to nine feet (diagonally). It was expected to be available in January.

In Focus Systems, 7770 S.W. Mohawk Street, Tualatin, OR 97062; (800) 327-7231 or (503) 692-4968. LitePro, $6,995; LitePro LS, $8,495; TVT 6000, $7,995.

NEC's Familiar Video Card

In our December New on the Menu, we mentioned that NEC had plans for a video card that would drive its impressive FG line of digitally controlled multisync monitors. True to its word, NEC has announced its MacFG Color Display InterFace card, an accelerated, upgradable NuBus video card.

The MacFG comes in two configurations: the 8X, for 256 color (8-bit), and the 24X, for 16.7 million colors (24-bit). You can upgrade the 8X to the 24X simply by adding VRAM, and you can even stop at 16 bits (65,500 colors). The MacFG can display resolutions from 640 x 480 to 1,152 x 870 pixels.

If all this sounds vaguely familiar, it should. The MacFG is NEC's adaptation of Radius' previously released PrecisionColor cards.

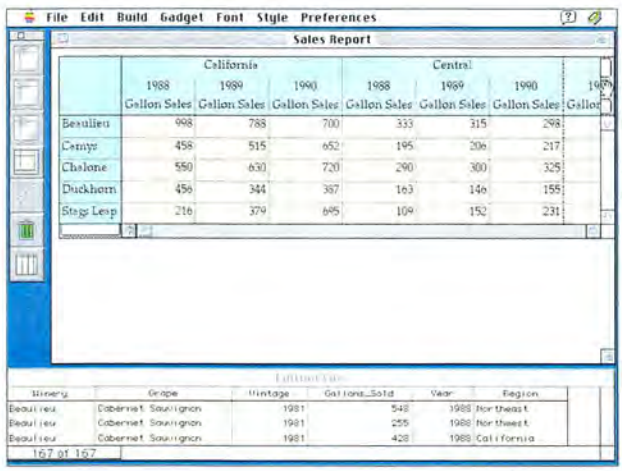
NEC Technologies, Inc., 1255 Michael Drive, Wood Dale, IL 60191; (708) 860-9500. 8X, $899; 24X, $1,899.

Swinging Data

Using spreadsheets is fine for analyzing most data, but only up to a point. Say, for example, that you want to study some sales figures for a group of territories. A spreadsheet's row-and-column structure is ideal. But now, imagine that you decide to look at each region by month, cross-tabbed by client — that's a problem a spreadsheet program would be hard-pressed to solve. Enter Data Pivot, an analysis tool from Brio Technology that makes performing cross-tabs as easy as clicking and dragging.

Data Pivot accepts data in tab-delimited or spreadsheet format, so once you have raw data, you're ready for your analysis. Data Pivot reads the data set's row and column headers (or the "table" if your data is coming from an SQL database) and presents them in a scrolling list. To start your analysis, all you have to do is select each header and tell Data Pivot whether you want it to be for a row or a column. Once the headers are established, you can flow the data into the new grid. Adding more headers for further analysis is just a matter of dragging the additional ones from the list into the report grid. Similarly, transposing rows and columns is a simple matter of dragging (or pivoting, to be more precise) them. By keeping everything graphical, Data Pivot makes performing complex analyses a breeze, and you can save your reports as reusable templates. Data Pivot can also save a report in a variety of spreadsheet formats, including Excel and 1-2-3 for the Mac.

Brio Technology, 444 Castro Street, Suite 810, Mountain View, CA 94041; (800) 486-2746 or (415) 961-4110. $249.



Data Pivot makes performing complex data analysis such as creating cross-tabs or hierarchical groups a simple click-and-drag operation.



Quantum's new Passport XL series brings the capacity and performance of Quantums to a sealed, removable drive that blazes past SyQuest's drives.

Quantum Goes Removable

Quantum has long been known for its fast, reliable fixed hard drives, and now it's about to enter the removable-drive market. The new Passport XL line of removable hard drives boasts performance specs that match or better those of the fastest fixed-media drives and leaves standard removable-cartridge drives in the dust.

Unlike cartridge drives such as the SyQuest, the Passport uses a completely sealed drive system, with the head and the media enclosed in an airtight housing. To use a Passport drive, you insert the drive into a housing unit that automatically loads the drive — it's much like inserting a videocassette into a VCR. Because of the Passport's sealed design, Quantum lists its MTBF (mean time between failures) rating at 250,000 hours and 20,000 insertion/removal cycles.

The Passport XL drives will be available in four capacities: 52, 105, 120, and 240 megabytes. The 52- and 105-megabyte models were to be available in January, and the others are expected in March.

Quantum Corp., 500 McCarthy Blvd., Milpitas CA 95035; (800) 624-5545 or (408) 894-4000. External chassis, $469; 50-megabyte model, $449; 105-megabyte model, $629; 120-megabyte model, $899; 240-megabyte model, $1,099.

Intelligent 3-D

When Ashlar introduced Vellum two years ago, it started a trend that practically every Mac-CAD vendor has since followed, the inclusion of an "intelligent" cursor to guide users through the drawing process. But even at Vellum's introduction, users asked for a 3-D version, and Ashlar has finally obliged, with the release of Ashlar Vellum 3D.

Like its predecessor, Vellum 3D is primarily a drawing tool, so its 3-D capabilities don't extend to doing rendering or solid modeling. Instead, Vellum 3D concentrates on precision wire frames. And to make the process of working in 3-D easier, Ashlar extended its Drafting Assistant feature from the original Vellum into the Z-Drafting Assistant, an intelligent cursor that functions in 3-D.

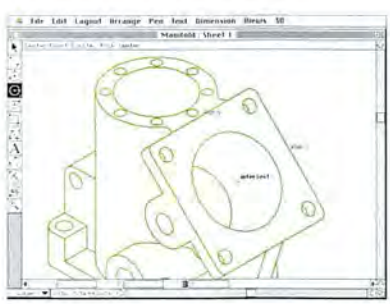
With the Z-Drafting Assistant, users can quickly create 3-D geometry without the complication of initially establishing working planes. In fact, working with Vellum 3D is much like working with the earlier Vellum, because the Z-Drafting Assistant performs the same intelligent cursor functions in 3-D space as its predecessor does in 2-D space.

Ashlar has also made viewing a 3-D drawing easier. Vellum 3D includes an on-screen trackball that lets users change the viewing angle simply by clicking and dragging the trackball around.

For output, Vellum 3D can automate the process with templates that include standard elements such as a company or artist's name and that automatically prepare and size drawings properly. For example, a drawing can be prepared to print in an isometric view on C-sized paper with just a single command. Plus, the views in the print preview remain fully editable.

Vellum 3D also includes an animation function that can produce PICS files. Although the first version will not include the ability to write QuickTime Movie-format files, Ashlar has confirmed that it will release a version with that function once QuickTime becomes available.

Ashlar, Inc., 1290 Oakmead Parkway, Suite 218, Sunnyvale, CA 94086; (408) 746-1800. $2,495.



With Ashlar's Z-Drafting Assistant, you can draw in 3-D space as easily as if you were working in 2-D. The Z-Drafting Assistant gives you on-screen guides that help you through your drawing.

NewsLine

Reports and Analysis

Claris Buys Hollywood

SANTA CLARA, CA — With the Apple/IBM deal pointing the way, Claris, Apple's software division, has followed suit by entering the Windows market. Claris has purchased a Windows presentation package called Hollywood, which IBM formerly distributed. IBM recently withdrew from the desktop-software market, leaving many products seeking new publishers. Claris will distribute and support Hollywood, but the package's developer, Publishing Solutions, will continue all development work. Under Claris, Publishing Solutions will develop an OS/2 version of Hollywood. As the product evolves, it will get a Claris interface and Claris' XTND file-translation architecture.

Borland Lays Off Ashton-Tate

SCOTTS VALLEY, CA — As expected, the merger of Ashton-Tate and Borland International has resulted in the virtual elimination of AT's work force. From a work force of more than 1,000, between 800 and 850 employees have been laid off. Although Borland has yet to make an official statement about the future of Ashton-Tate's Mac programs — FullWrite Professional, Full Impact, and FullPaint — Borland CEO Philippe Kahn has made it clear that Borland has no interest in the packages and will try to sell them if it can find a buyer.

Farallon Sells Multimedia

EMERYVILLE, CA — Although its MacRecorder sound digitizer was the very first Mac multimedia package, Farallon Computing has decided to get out of the multimedia market and has sold MacRecorder and its software, SoundEdit, to MacroMind/Paracomp. Farallon retained the right to use the sound technology it developed in its MediaTracks program. Prior to the sale, Farallon laid off 27 people associated with its multimedia projects. Farallon has recently focused its energies on its networking products, including its successful PhoneNET line.

Apple Settles Beatles Suit

LONDON, ENGLAND — The Beatles may have sung, "All you need is love," but apparently singer Randy Newman was closer to the truth: "It's money that matters." Apple Computer has settled the lawsuit with Apple Corps., the Beatle's holding company, for a reported $29 million. No settlement terms were disclosed.

HARDWARE

Outbound Notebook 2030

Fast, light, and upgradable, the Notebook 2030 gives the PowerBook 140 a serious run for its money.

From the sound of the New Age startup chord to the feel of the ergonomic trackball, Apple's new PowerBooks are three sexy Macs. But before you put your money down, you'll do well to consider the Outbound Notebook System Series 2000. Although not as elegantly designed as the state-of-the-art PowerBooks, Outbound's four units are smaller and lighter and have bigger displays. The model we tested, the 2030, is faster than its comparably priced rival, the PowerBook 140.

Even better is that unlike the PowerBooks, the entire Outbound line of CPUs, coprocessors, and hard drives is upgradable. RAM is also easy to upgrade, so your Outbound notebook can grow with your needs. By comparison, Apple currently offers no upgrade path for its line of notebooks — buy one now, and forever hold your peace.

Lightweight Heavyweights

The Outbound notebooks are not Macintosh clones. They run on Mac Plus and SE ROMs. Unlike those of Outbound's first portable Mac (see "Have Mac, Will Travel," September '90, page 192), the new notebooks' ROMs come preinstalled, so you don't have to cannibalize your Mac's ROMs to make your Outbound run, as you did with the original portable. In addition, because the ROMs in the current batch of Outbound units are newer, the machines' features can compete with those of the PowerBooks.

Roughly matching Apple's PowerBook line in price and features, the Outbound Notebook System Series 2000 comprises the low-end 2000 (which is powered by a 20-megahertz 68000), the midline 2030 (20-megahertz 68EC030), the 2030E (25-megahertz 68EC030), and the 2030S (33-megahertz 68030). The 2030S hadn't been released at press time, but it should be available in the first quarter of 1992.

Outwardly, the most notable feature of the Outbound notebooks is their size. At 6.25 pounds, Outbound machines are half a pound lighter and an inch smaller than the PowerBook 140 and 170. The low-end PowerBook 100 is smaller than the Outbound notebooks, but it doesn't include a floppy drive. All Outbound notebooks are equipped with a floppy drive that's compatible with Apple's standard 1.44-megabyte SuperDrive.

For cursor control, Outbound uses a much improved version of its IsoPoint pointing device. Called the TrackBar, it comprises two mouse buttons and a rolling bar that also moves sideways. The TrackBar takes up little space and is superior to many of the clip-on trackballs of DOS notebooks. We got used to the TrackBar after only a few hours, but it's not as natural to operate as the PowerBooks' built-in trackball. As with the PowerBooks, die-hard mouse fans can plug a standard mouse in to the Outbound models' ADB port.

The Outbound notebooks use the conventional forward placement for their keyboard, in contrast to the location of the PowerBook keyboard at the rear of the unit, a design that makes for comfortable typing because of the wrist support. Strangely, the location of the individual keys on the Outbound machines is more like that of a standard Mac keyboard than that of the PowerBooks, which reverse the position of the Enter and backslash as well as the Escape and tilde keys. The Outbound keyboard is firmer than standard Mac keyboards, whereas the PowerBook keyboard is "mushier" than the desktop-Mac versions.

The PowerBooks offer excellent screen quality, and here the Outbound units have a harder time competing. All four Outbound Series 2000 models use a supertwist LCD display with screen quality and redraw speed that, although much improved over the old Outbound portable's, can't match the superior quality of the PowerBook displays. Moreover, none of the Outbound notebooks support color video.

But with a resolution of 640 x 480 pixels (the same resolution as an Apple 13-inch monitor), the Outbound notebooks can display more information on-screen than the 640-x-400-pixel PowerBook screens can. This is a nice feature to have if you work on spreadsheets or long word-processing documents.

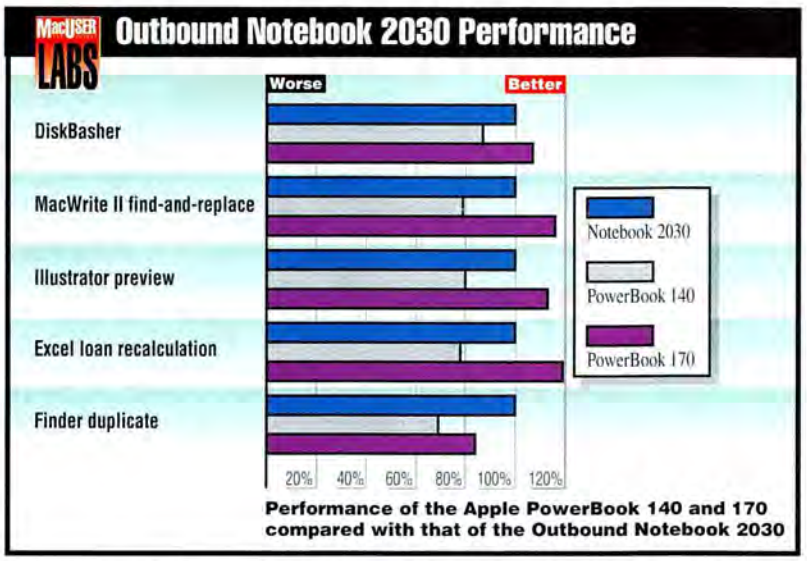
Under the Hood

Hard-disk drives for the Outbound notebooks range in size from 40 to 120 megabytes. For $500 to $800, you can trade your hard drive in for a bigger one simply by sliding it out the left side of the notebook and sending it to Outbound. This design makes it easy for many users, each with a hard drive, to share a single notebook.

For fast access to data, you can buy internal RAM disks with capacities as large as 60 megabytes for the Outbound machines. External SCSI devices connect to the notebooks via a standard 25-pin SCSI port. The PowerBooks, on the other hand, use new, nonstandard 29-pin connectors. The Outbound notebooks are equipped with all the standard Mac ports as well as a built-in microphone.



The Outbound Notebook 2030 provides stiff competition for the Apple PowerBook 140. The speedier 2030 has an upgradable logic board. RAM upgrades are also cheaper and easier than the PowerBook's, and the 2030 comes in a smaller, lighter package.



Our tests showed the Outbound Notebook 2030 to be 25 percent faster overall than the comparably priced Apple PowerBook 140. The Outbound machine also nipped close at the heels of Apple's top-of-the-line PowerBook 170. All the units tested were equipped with 4 megabytes of RAM and 40-megabyte hard drives.

Performance is another area in which the Outbound units excel. Our tests showed the midline 2030 to be 25 percent faster overall than the PowerBook 140, which has a 16-megahertz 68030. Even more impressive, the 2030 proved to be faster than even the high-end PowerBook 170 in some tests. The 2030 was aided by a 68881 floating-point coprocessor, a $149 option for all Outbound notebooks except the 2000. A floating-point chip is *not* an option for the PowerBook 140.

The 2030's 20-megahertz 68EC030 chip is a version of Motorola's 68030 that doesn't include a PMMU (Paged Memory Management Unit), so you can't use virtual memory with the 2030 whereas you can with the PowerBook 140. But given the choice between virtual memory and a floating-point coprocessor, the latter makes sense for notebook users who don't have ready access to a power source, because it doesn't affect drive and power resources. The higher-end 2030S model does support virtual memory. And unlike the PowerBooks, an Outbound notebook can be upgraded to a beefier model if you decide you've outgrown its processing power. The entire logic board slides out the back of the unit. A 2000-to-2030 upgrade costs $599.

The removable logic board also enables easy RAM upgrades, and the upgrades are significantly less expensive than PowerBook RAM upgrades. That's because the Outbound notebooks use the same standard 1-megabyte SIMMs as desktop Macs do. They can be had for as little as $30 per megabyte, compared with $200 per megabyte for the PowerBook's special RAM. Like the PowerBook 100, the Notebook 2000, 2030, and 2030S are limited to a maximum of 4 megabytes of RAM (not including a RAM disk). You can outfit the 2030E model with up to 14 megabytes of RAM, however.

Although it uses Mac Plus ROMs, the Outbound 2030 overcomes many of the old ROM limitations with an EEPROM (electrically erasable programmable read-only memory) chip, which can be updated with software. Any incompatibilities resulting from changes in system software can be fixed with a software patch from Outbound. For instance, the Outbound notebooks were not compatible with System 7.0.1 for several weeks, but a simple patch fixed the problem. We encountered no incompatibility problems with applications in testing the 2030, and both System 7 and AppleTalk Remote Access ran without a hitch. Keep in mind that, unlike the Outbound units, the PowerBooks *require* System 7.0.1, something to consider if you absolutely must run System 6.

Like all the other Outbound notebooks, the 2030 is powered by a standard Panasonic camcorder battery ($99 apiece for extras). Because of their similar power-management techniques, including sleep mode, hard-disk spin-down, CPU standby, and backlighting off, the Outbound notebooks and Apple PowerBooks have a battery life of about three hours. The Outbound notebooks have an indicator light for battery charging, whereas the PowerBooks require you to open a DA to verify charging.

When it comes to telecommunications, the PowerBooks have the edge, with their built-in, 2,400-bps fax modem and elegant software (free with the 170 and optional with the 140). The Outbound machines don't allow use of an internal modem, but Outbound offers the 2.4-ounce, 2,400-bps external PocketPort modem ($279) for data only.

The Outbound notebooks come with a nylon slipcase; a heavier carrying case is available for $89. Apple doesn't offer a case. Neither company provides a built-in handle, but Outbound supplies an attachable strap.

The Bottom Line

Outbound has delivered a line of well-designed, well-built notebook Macs. Rather than duplicating Apple's efforts, Outbound provides an alternative to the PowerBooks. The PowerBooks are decidedly sexier, with their excellent displays, ability to output video to color monitors, and built-in trackballs, but the Outbound notebooks are more practical, offering faster performance, cheap and easy RAM upgrades, and the ability to display more information. We wish more Outbound models were equipped to handle more than 4 megabytes of RAM, but you can always upgrade to the model 2030E. In fact, the Outbound notebooks' ability to grow with your needs is probably their most attractive feature, given the potential they have to take advantage of future innovations.

— John Rizzo

Get Info

Outbound Notebook 2030

★★★★½

Manufactured by: Outbound Systems, Inc., 4840 Pearl E. Circle, Boulder, CO 80301; (303) 786-8611.
List Price: $3,499.

INTEGRATED SOFTWARE

GreatWorks

GreatWorks may be a bargain, but it's no paradigm for integrated software.

GreatWorks is the first of several packages to breathe new life into the integrated-software arena. An amalgam of eight applications, GreatWorks succeeds in delivering impressive value, but the level of integration among the program's modules is almost nonexistent and is clearly no match for the integration of another newcomer, ClarisWorks, which features a high degree of functionality *among* modules as well as within them.

How Great Is GreatWorks?

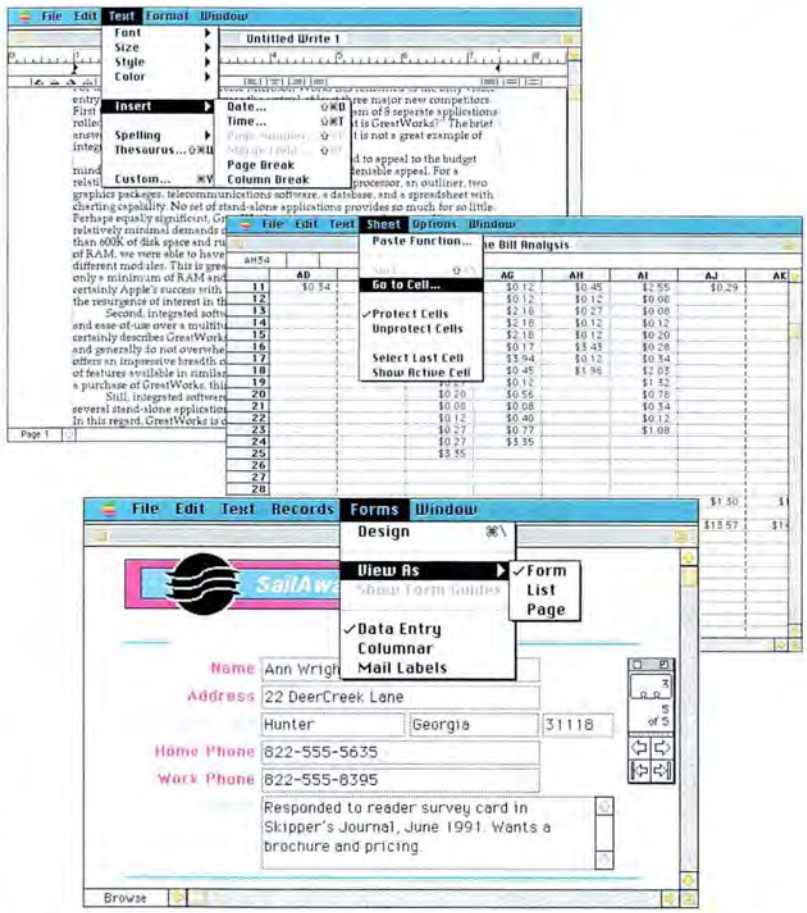
At a price of $299, GreatWorks combines a word processor, an outliner, two graphics applications, telecommunications software, a database program, and a spreadsheet program with charting. No set of comparable stand-alone applications gives you so much functionality for so little money. Despite the sturdy tools GreatWorks offers, it isn't designed to compete with powerful stand-alone products such as Microsoft Word and FileMaker Pro.

GreatWorks also saves money because of its relatively minimal hardware demands. It requires less than 600K of disk space and runs in just 1 megabyte of RAM. Within that megabyte, we could open six documents simultaneously, each from a different module, which is great news for owners of Classics and LCs equipped with minimal RAM and small-capacity hard drives. Integrated software should also be easy to use, and GreatWorks meets this need with well-designed commands and dialog boxes that don't overwhelm users with a wide variety of options.

But the capabilities of modules are only part of the integrated-software story. Integrated packages should offer more than the sum of their parts. Ideally, separate modules should work together in a way that separate applications can't. In this regard, GreatWorks fails. True, all the modules are contained within a single application and you open them from a single dialog box. This is an advantage for users who aren't using MultiFinder or System 7. Also, all the modules share GreatWorks' Core technologies of search-and-replace, spell checking, thesaurus, and all font and style options. Similarly, the Paint, Draw, Chart, and Database modules all use a similar graphic Tool palette.

What's missing from GreatWorks, however, is the ability to share data seamlessly between modules, to automatically update shared data, and to work effectively with more than one module at a time. GreatWorks' charts, for example, aren't updated when you change the linked data in the spreadsheet program. To do so, you must manually select an Update Chart command every time the data in your spreadsheet changes. But at least the Update Chart command is there. In most other respects, GreatWorks provides no way to link modules. If you change the data for a chart that has been pasted into a word-processing document, for example, you must repaste the chart after you've updated it. This would also be true if you pasted the chart into a stand-alone word processor, but that's the point: GreatWorks fails to exploit its inherent advantage over stand-alone applications.

Similarly, GreatWorks' Paint and Draw modules don't interact with each other or any other modules. You can't get a combined view of the two graphic layers,



GreatWorks' word-processing, spreadsheet, and database modules are, in themselves, quite serviceable, making the package an attractive value at $299. But compared with those of other integrated programs, GreatWorks' modules do a poor job of sharing data and working smoothly with one another.

This packing slip has more than your name on it.

SIVEY ANDERSON
Your name could be here.
SIVEY ANDERSON INC
210 KINGS WOOD DR
KING GEORGE VA

DUSTIN

PACKING SLIP

Lotus 1-2-3 for only

$325

The power of Lotus 1-2-3 designed exclusively for the Macintosh. Innovative spreadsheet capabilities. You customize the desktop, manipulate data, text and graphics. And, it's System 7 compatible.



FREE DEMOS

Call for a free "auto demo" or "introductory video" of Lotus 1-2-3 for Macintosh. There's no obligation and you can enter the Mountain Bike giveaway when you call. While supplies last.



Demos, yours for the asking.



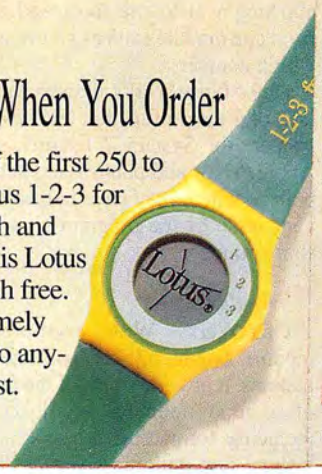
MOUNTAIN BIKE GIVEAWAY

When you order Lotus 1-2-3 for Macintosh or request your free demo you are registered to win a Mountain Bike. A great application, a great prize, no obligation. It's that easy, so call Dustin today.

Official Rules: NO PURCHASE NECESSARY. Entries will be accepted between January 10 and February 28, 1992. Winners will be drawn by random selection from names entered each day. Odds of winning will depend on the number of entries received. Total prizes awarded: 10. Void where prohibited. Limit one prize per person.

Watch When You Order

Be one of the first 250 to order Lotus 1-2-3 for Macintosh and receive this Lotus wristwatch free. A very timely addition to anyone's wrist.





FREE GROUND SHIPPING

Call Toll Free from anywhere in the United States
Monday thru Friday–6:00AM to 5:00PM PST

1-800-933-8784

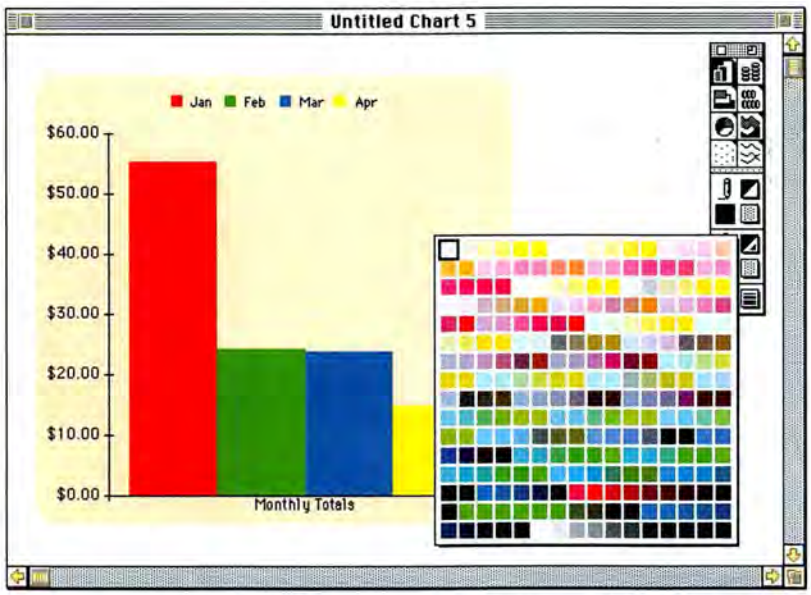
Or Fax It!

1-818-884-5310

20969 Ventura Boulevard, #13, Woodland Hills, CA 91364 • 818-710-9174

Prices subject to change without notice.

CIRCLE 35 ON READER SERVICE CARD.



A glaring example of GreatWorks' lack of integration is its charts, which lack hot links with corresponding spreadsheet data.

as you can with SuperPaint or UltraPaint, and the only way to transfer graphic objects is via the Clipboard. Even integrated software old-timer Microsoft Works includes a "transparent" drawing layer that lets you place objects directly into documents residing in other modules. Overall, when it comes to integration, ClarisWorks is far superior to GreatWorks, allowing you to use tools and features from one module even as you're working within another.

Other GreatWorks drawbacks are its lack of a macro function and absence of support for System 7 features such as Apple events and publish-and-subscribe, both of which may have helped circumvent some of the program's integration shortcomings.

What's Inside

GreatWorks' Write word-processing module is among the package's best features. It provides most of the functions of a good midrange word processor, including formatting controls, style selection, and multiple columns. Notably missing are footnotes and search-and-replace based on text style attributes.

The Outline module is a plus, especially considering that neither ClarisWorks nor Microsoft Works provides one, but you can't send outline text to the word processor (or vice versa) except via the Clipboard.

GreatWorks' Database module is easy to use. Form design is flexible, with a style and range of options suggestive of FileMaker Pro. You may attach any number of forms to a file. GreatWorks also includes predesigned templates for labels and envelopes. Creating reports is limited, however, because you can't calculate subgroup totals and summaries. Sending data from the Database module to the Spreadsheet module is also a hassle, because you must first save the data as a text file and then import it to the Spreadsheet module.

With an outward appearance that resembles Microsoft Excel's, GreatWorks' Spreadsheet module is serviceable and should meet the needs of most users except those who rely on macros. The program also lacks split-window and freeze-pane options.

Although GreatWorks' Chart module lets you create good-looking charts quickly and easily, its lack of hot links to other modules makes it one of the package's weakest applications. Moreover, it allows little text editing, a drawback compounded by the module's inadequate labeling system, which carries data over from the spreadsheet. The only way around this drawback is to copy and paste charts into the Draw module for editing.

The Paint module, reminiscent of MacPaint, is restricted to black-and-white, despite the availability of color in other GreatWorks modules. On the other hand, the object-oriented Draw module supplies all the essential tools you need, with the added bonus of a 256-color palette.

GreatWorks' Communications module succeeds at simplifying what is often the most arcane of general-purpose computer applications. In an especially well-designed set of dialog boxes for configuring the VT102 emulation mode, it uses icons to explain options to users. What's missing are a macro capability for automating log-on procedures and a wider selection of file-transfer protocols, such as Ymodem or Zmodem. Symantec claims that new protocols will be available from third parties via Apple Communication Toolbox plug-in modules.

Finally, in addition to the common Core features mentioned above, GreatWorks modules share format translators based on Claris' XTND technology for importing and exporting files. The program provides both a complete on-line help reference as well as Balloon Help under System 7.

The Bottom Line

Based on a module-by-module feature count, GreatWorks consistently outperforms veteran Microsoft Works, sometimes by a wide margin. Moreover, budget-conscious users will be attracted by GreatWorks' solid value: Its word processor, outliner, and database and spreadsheet programs are good enough to make it a better choice than midrange stand-alone packages for less demanding users.

GreatWorks misses the mark when it comes to integration among its modules, however, leaving little to recommend it over ClarisWorks (look for a ClarisWorks review in an upcoming issue of *MacUser*). ClarisWorks is clearly the best choice among the three packages if you're looking for integrated software that optimizes its modular design.

— Ted Landau

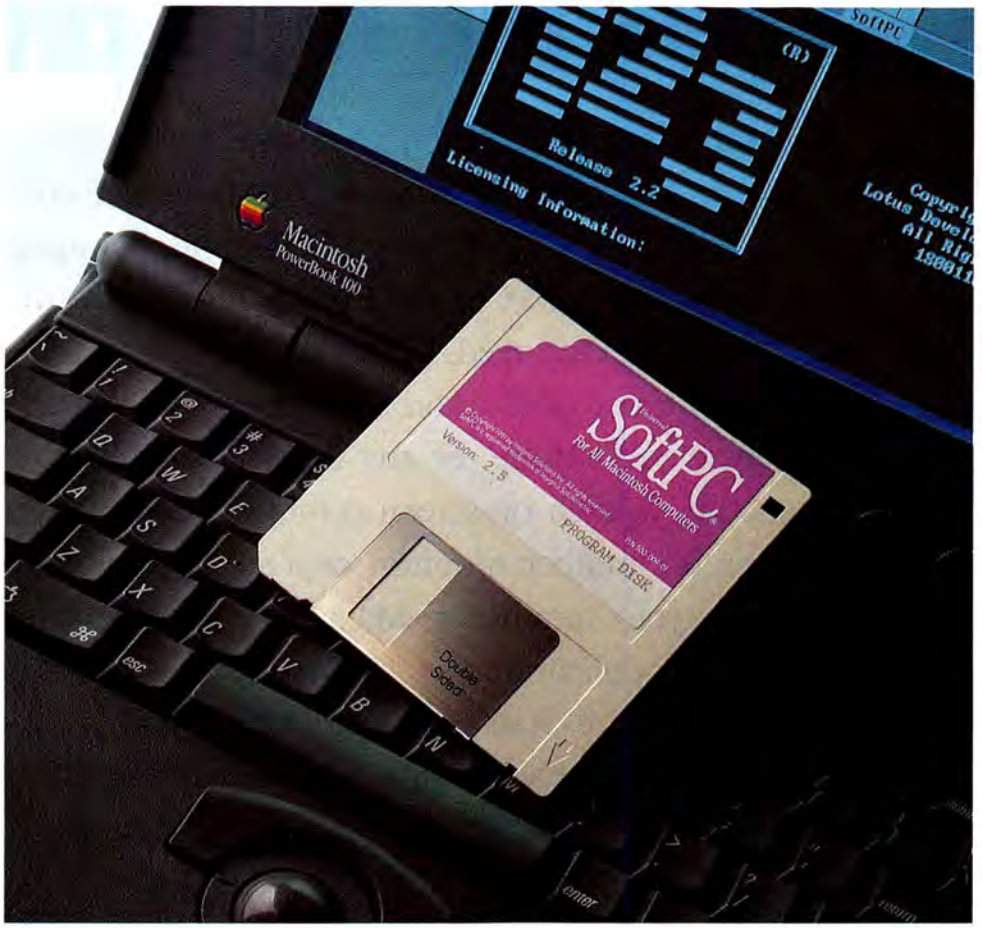
Get Info

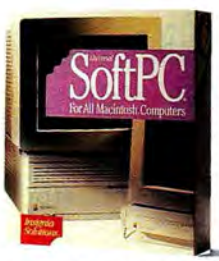
GreatWorks

$$$

Published by: Symantec Corp., 10201 Torre Avenue, Cupertino, CA 95014; (408) 253-9600.
Version: 1.0.1.
List Price: $299.

Why Your Next IBM Computer Should Be A Macintosh.





SoftPC makes your Mac an IBM compatible. With SoftPC, the new Macintosh computers are more than just powerful and portable. They are also the most compatible computers available. Now they can run a whole world of MS-DOS software. Because SoftPC® from Insignia Solutions lets you run any MS-DOS program on a Macintosh. Even over a Novell PC network.

And SoftPC works on any Mac, from the Plus to the new Powerbooks and Quadras.

It's simple. Just load SoftPC and an IBM window appears on the screen. There's no hardware installation required. It's like having two computers in one.

If you don't believe it can be that simple, call us at (800) 848-7677. We'll answer all of your questions, and show you how your next IBM computer could be Macintosh.

Insignia Solutions™
Bridging Worlds Of Software™

INSIGNIA SOLUTIONS INC., 526 CLYDE AVENUE, MOUNTAIN VIEW, CA 94043 FAX: (415) 964-5434 CALL: (415) 694-7600

SoftPC is completely compatible with Apple's System 7 software. SoftPC is a registered trademark of Insignia Solutions Inc. All other product names are trademarks or registered trademarks of their respective holders.

CIRCLE 152 ON READER SERVICE CARD.

The first monitor for people who know which red is the right red.



NEC, who brought you the first color laptop *computer and affordable color printers, now brings you the* ***only*** *color monitors with the AccuColor Control System, an unprecedented step in user-adjustable color accuracy.*

You can match the red on your letterhead, the red on a slide, even the red on your favorite tie. And you can do it easily.

With NEC's new MultiSync® FG™ series monitors.* Our revolutionary AccuColor™ Control System allows you to adjust image colors to your exact needs.

This new color calibration system lets you match colors on your screen to Pantone® or any other color reference system. You can also match on-screen colors to those delivered by your color printer, another monitor, or a service bureau output.

Whether your monitor needs are for general business use, multi-media applications, or color prepress, you're probably relying on color more than ever. And we've made it easier than ever to match the color you need. You can actually set the red, green, and blue color guns in precise digital steps to adjust the colors on the display.

The FG series also gives you sharper graphics and text. So even if you're not one of those people who knows which red is the right red (top row, fourth column), the answer to your monitor needs couldn't be clearer.

Call 1-800-NEC-INFO. (In Canada: 1-800-343-4418.) For immediate info via fax, call NEC FAST FACTS, 1-800-366-0476. Request #1521.

C&C
Computers and Communications

MultiSync is a registered trademark and AccuColor and FG are trademarks of NEC Technologies, Inc. Pantone is a registered trademark of Pantone, Inc. © 1991 NEC Technologies, Inc. *Not available on the 3FGX



Because ⬆ is the way you want to go. NEC

CIRCLE 142 ON READER SERVICE CARD.

SCANNERS

PageBrush Professional

You need a lot of time but not a steady hand to use the PageBrush Professional hand scanner.

The PageBrush Professional, from Mouse Systems, is a hand-held scanner that departs significantly from the way all hand-held scanners have always worked. This gray-scale scanner takes a free-form rather than a linear approach to scanning. You can move the PageBrush Professional in every direction over an image, and the scanner stitches the results together on the fly.

Unfortunately, Mouse Systems' innovative idea turns a bit sour, because of the abominably slow performance of the PageBrush Professional software.

Mouse on Steroids

The $899.95 PageBrush Professional is a 6-bit gray-scale scanner that reads 64 shades of gray at resolutions as high as 300 dpi. It saves images in 8-bit format. The scanner, which measures 4.5 x 3 x 2 inches, can double as an overgrown mouse, because the scanner case houses a sensitive two-button optical mouse as well as a petite scanner head.

The minimalism of the PageBrush Professional hardware is due to its use of a Mac II NuBus card. Unlike most other hand scanners, this unit connects to the card rather than to a SCSI port. This arrangement moves most of the electronics from the scanner housing to the computer.

Like an optical mouse, the PageBrush Professional uses an acetate pad to track mouse movements, measuring its movement by reading a hairline grid printed in the acetate. You place the acetate over images you want to scan, and the grid also serves to track the PageBrush Professional's impressive free-form hand scanning.

The grid helps the scanner keep track of its location and what part of the underlying image it's already scanned. The PageBrush Professional's stitch-as-you-go approach also lets you adjust brightness on the fly by moving a wheel on the side of the scanner.

The scanning software of the PageBrush Professional sports several basic image filters and editing tools that soften, blur, despeckle, and rotate images. You can export images in TIFF, PICT, EPS, and MacPaint formats.

Setup is straightforward, and the card, scanner, and mouse worked the first time we used them. Scanned images were easy to create and had good quality, once we got used to the unit's unique technique.

Despite Mouse Systems' achievements with this innovative device, however, we were sorely disappointed, because of some of its drawbacks. The most significant problem is PageBrush Professional's performance: Its software is incredibly slow at saving and opening images. The image we scanned at 64 shades of gray with a resolution of 175 dpi took nearly 4 minutes to save as an uncompressed TIFF file. In comparison, the same image scanned and saved by a flatbed scanner at 256 shades of gray with a resolution of 144 dpi took only 10 seconds, and Photoshop resaved the image in about 30 seconds.

Mouse Systems' technical support had little explanation for this disparity, suggesting (wrongly) that saving the file in a compressed format might save some time.

We encountered another problem when the scanner strayed a bit from the acetate-grid boundaries. The image's stitching faltered, and we had to start over. Another irritating hardware-design flaw is the position of the scanner light, which is recessed from the sides of the scanner, making it hard to tell precisely where scanning will begin. This wouldn't be





The PageBrush Professional's unique approach to hand scanning lets you move the device, which is about an inch longer than the Apple mouse, freely over an image. The results are automatically stitched together on the fly. Unfortunately, the PageBrush Professional takes so long to save the final image that you'll probably wish you'd paid a little more and bought a flatbed scanner instead.

300 dpi & 600 dpi

QMS introduces a PostScript printer of extremely strong character.

The new QMS-PS® 815 MR™ print system gives you 300 x 300 dpi and true 600 x 600 dpi Adobe® PostScript® printing at your fingertips. Extremely sharp, crisp characters, fine line detail and clear halftones make this the reliable, affordable eight-page-per-minute printer you're after. See how the following features plus QMS National Service and free technical support will keep your 815 MR (and you) looking sharp.

- True 600 x 600 dpi delivers four times the gray levels as 300 x 300 dpi for clear halftones
- Connects to IBM® or compatible computers, Apple® Macintosh® computers & most mini computers & mainframes simultaneously
- Automatically switches to 300 x 300 dpi mode when needed for HP® applications
- Interprets incoming printer language (HP or PostScript) and switches automatically

For more information on the QMS-PS 815 MR, or on any other QMS® PostScript printer, call today. Or Fax QMS Product Information at 205-633-4866.



POSTSCRIPT

MACUSER EDITORS' CHOICE NOMINEE 1991

1 800 GET HI-RES EXT. 25
1 800 438-4473

QMS
Where Imagination Leads

CIRCLE 53 ON READER SERVICE CARD.

ollowing are trademarks or registered trademarks of their respective companies:
, QMS-PS, MR and the QMS logo of QMS, Inc. Adobe, PostScript, and the PostScript
of Adobe Systems, Inc. IBM of International Business Machines Corp. Apple and Macintosh
ple Computer. HP of Hewlett-Packard Company.

such a problem if the software didn't require that you position the unit at the top left corner of each image prior to scanning. As a result, we had to restart the scanning process several times before we managed to click on the right spot.

In addition, scanned images must fit into RAM. The software doesn't take advantage of System 7's virtual-memory capability, which means that you must adjust an image's size and resolution to shoehorn the image into your computer's memory configuration before you can start scanning. The program requires 2 megabytes to run, but you need much more than that for scanning large and/or high-quality images.

If this isn't enough to dampen your spirits, the PageBrush Professional is a miniature marvel as a scanner but it's too big to use as a mouse. The manual says that you can use it for any kind of mousing, but unless you have Paul Bunyan hands, be prepared to experience a real cramp, literally, in your style.

One last complaint involves the manual, which has inconsistencies. In many cases, the manual disagrees with the software, and the terminology it uses is often nonstandard for scanning software (there's no mention of lines per inch, for example).

The Bottom Line

It's definitely fun to scan with the PageBrush Professional. It shows a spark of innovation with its free-form approach to hand scanning. But with the PageBrush Professional's price of almost $900, you don't save enough compared with the price of a flatbed scanner to warrant the excruciating amount of time you'll waste saving and opening scanned images. Mouse Systems promises to correct the performance problem in a future version of the software, scheduled for release in February 1992.

— Dave Valiulis

Get Info

PageBrush Professional

↕↕½

Manufactured by: Mouse Systems, 47505 Seabridge Drive, Fremont, CA 94538; (510) 656-1117.
Version: 1.0.
List Price: $899.95.

OUTPUT DEVICES

Personal Label Printer, LabelWriter II, and Smart Label Printer Plus

Speed and well-engineered software give CoStar's label printer the edge over competition from Seiko and Avery.

If you're tired of manually feeding envelopes into laser printers, a good solution may be a personal label printer. Avery, CoStar, and Seiko offer inexpensive, easy-to-use, and compact devices that promise to end the frustration of printing or hand-addressing envelopes in small quantities.

Something in Common

Each of the three label-printer packages has a printing device and software, which contribute equally to the package's value. The Avery Personal Label Printer and the CoStar LabelWriter II use identical hardware that has a stationary thermal head to produce a resolution of 138 dpi.

The Seiko Smart Label Printer Plus hardware uses a dynamic thermal head that's capable of producing resolutions of 75 x 100 dpi or 150 x 200 dpi. But be forewarned: The higher resolution slows printing speed considerably. The Avery device is twice as fast as the Seiko printer running at its higher resolution, and the CoStar unit is three times as fast.

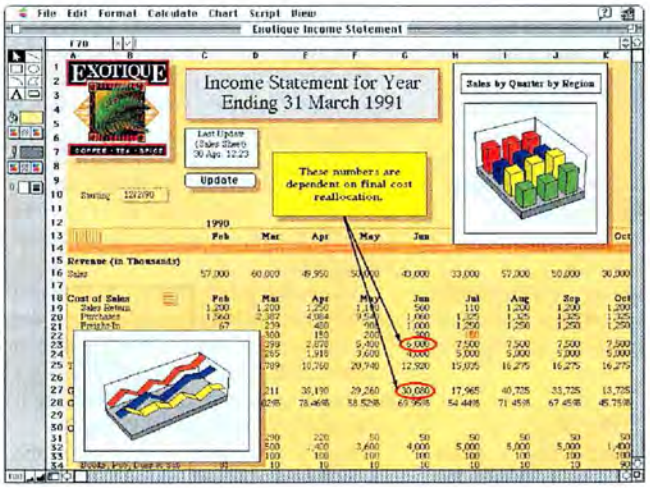
Although the performance of the three devices differs, the output quality is quite similar, resembling output from an ImageWriter II. All three printers print on 1⅛-x-3½-inch labels.

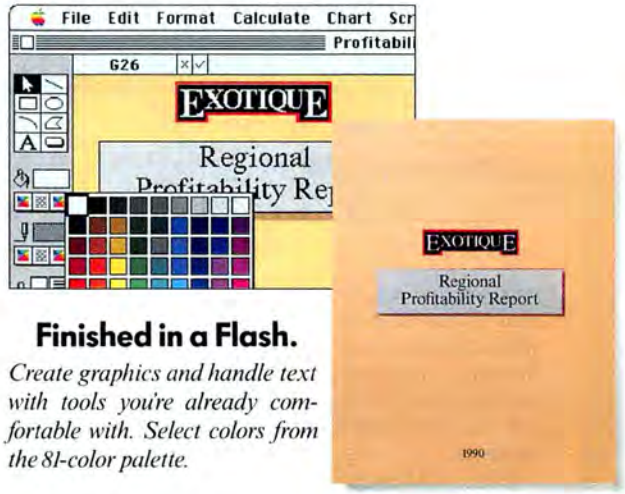
Setting up any of these devices is as easy as finding some space on your desk and a free serial port on your Mac. In case



The CoStar LabelWriter II (left) and the Avery Personal Label Printer (center) use the same hardware but differ widely when it comes to software. The Seiko Smart Label Printer Plus (right) is the simplest printer to use, but its DA lacks some useful features.

The only thing missing from our new spreadsheet is the learning curve.



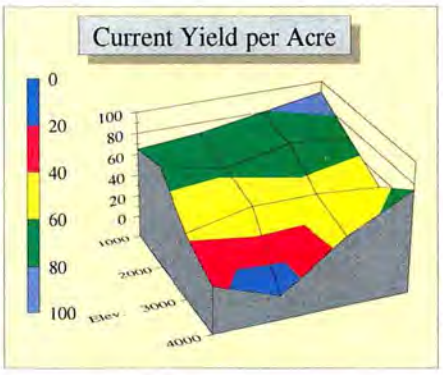


Finished in a Flash.

Create graphics and handle text with tools you're already comfortable with. Select colors from the 81-color palette.

So, You Want It All Now.

Claris Resolve gives you the power of a billion cells and 149 advanced business functions. Yet it's readily accessible — for example, zooming, so you can see the forest or the trees.



Effortless Graphs.

Making your own charts and graphs with new Claris Resolve is unbelievably easy. Select one of 25 chart types.

The System 7 Spreadsheet

Introducing Claris Resolve.

Claris Resolve

The new Claris® Resolve™ spreadsheet lets spreadsheet power flow to your fingertips freely and intuitively, for the first time. It utilizes interfaces, tools and commands familiar to anyone who's ever used a Macintosh.

Claris Resolve is packed with clever, interactive features that help people quickly get their footing. Like context-sensitive help. Automatic scripting. One-step charting. Instant zoom-in and zoom-out. Even a built-in spell checker.

But lurking just beneath the surface are enough tricks to inspire any power user. 149 built-in functions to help solve any business problem. 25 kinds of charts and graphs to excite the most jaded audience. Elegant, built-in database functions so you can swiftly access your data.

Yet, perhaps the most shining quality of Claris Resolve is how it exploits System 7's most powerful functionalities – *Publish & Subscribe* and *InterApplication Communication.* So you can effortlessly combine the power of Claris Resolve with other applications.

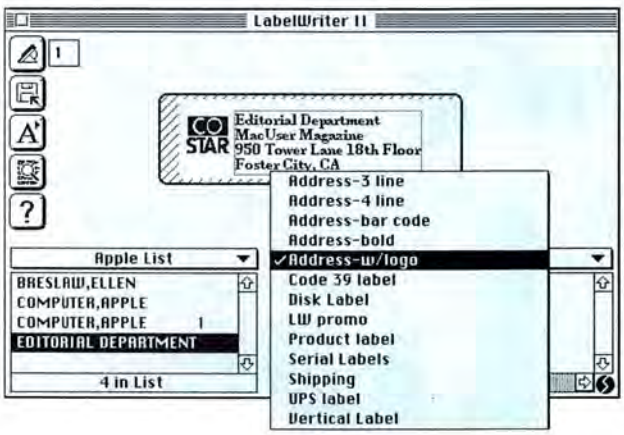
Claris Resolve is the latest addition to the Claris family of software for System 7 – a new generation of applications that work together more simply, more powerfully, more gracefully than any software for the Macintosh ever has before.

Special offer for owners of other spreadsheets.* Get Resolve for only $99. Call 1-800-544-8554, ext. 97.

CLARIS®

Simply powerful software.™

*Offer applies to owners of Microsoft Excel, Lotus 1-2-3, Informix Wingz, and Ashton-Tate Full Impact. Offer good in U.S.A. only. Expires June 30, 1992. ©1992 Claris Corporation. All rights reserved. For more information call 1-800-729-2292, ext. 20. In Canada, call 1-800-668-8948, ext. 48. Claris is a registered trademark of Claris Corporation. Resolve and Simply Powerful Software are trademarks of Claris Corporation. Apple logo and Macintosh are registered trademarks of Apple Computer, Inc.



The CoStar LabelWriter II is the best choice, because of its excellent software. The printer's easy-to-use DA lets you create multiple mailing lists and gives you access to a variety of label templates.

your modem and printer ports are occupied, CoStar offers an A/B box ($49.95), which lets you connect two serial devices through a single port. CoStar also offers an AppleTalk Network Box ($199), so you can share your LabelWriter II on a network.

Each of these printers comes with DAs that are designed to make label printing a snap from within any word-processing program. You simply copy the name and address from a letter and open the label DA. With the CoStar and Seiko DAs, you don't even have to paste in the text — the software automatically places the text from the Clipboard in the label field.

Each printer comes with Chooser-level drivers, but you don't need to change the Chooser driver to print from the DAs. All three drivers run the label printers automatically, without interfering with LocalTalk printer connections.

Avery Personal Label Printer

The Avery DA, a component of Avery's MacLabelPro application, is downright cumbersome. It uses frames for text and graphics, which require you to paste names and addresses in a three-step process. After you've copied the text from a letter, you must select the text field for the label, select the contents, and then paste. The DA also lacks any sort of database capability for sorting or retrieving names and addresses.

The Personal Label Printer comes bundled with MacLabelPro, a full-featured label-printing program that lets almost any Mac printer print on a wide variety of labels. However, there was no template for the 4150 label — the one required for the Personal Label Printer. This omission might have been an oversight, but in retrospect, it's probably a good thing. Because of its complexity, MacLabelPro is not software you'd normally want to use with a simple label printer.

CoStar LabelWriter II

In the label-printing-software arena, CoStar is the hands-down winner. The LabelWriter II comes with an easy-to-use DA and a full-featured application. The DA supplies a powerful database engine for names and addresses. It lets you create multiple lists and access them readily through a pop-up menu. You can print graphics as well as text from the DA.

Another pop-up menu gives you access to templates that specify text formatting and the number of text lines. The templates can also contain graphics and postal bar codes. You create templates with the LabelWriter II application. It has the same names-list feature as the DA does, so you can print directly from it. It's unlikely, however, that you'll use the application for everyday printing. It's geared toward users who require highly customized labels. It's also useful if you want to print pages of labels on a laser printer, because it supports other printers besides the LabelWriter II.

We encountered one problem with the DA when it came to switching type specifications. Instead of changing the specifications, the software changed the font.

Seiko Smart Label Printer Plus

If simplicity is your chief concern when it comes to label printing, then the Seiko package is the best buy. Its DA (no application is provided) is built around a no-frills database. The DA supports only text. You can't add graphics to your labels without using another application.

The Bottom Line

Of the three label printers reviewed here, only two are viable options. If you want the simplest approach and don't anticipate that your needs will grow, the Seiko Smart Label Printer Plus is probably your best buy. Compared with the CoStar printer, it's not smart, but its DA is easy to use and it gets the job done.

For those who are planning to use their label printer heavily, need to maintain a variety of mailing lists, and want to print graphics as well as text on their labels, the CoStar LabelWriter II is a solid investment. It's the fastest device, and its DA offers powerful features teamed with an excellent interface.

CoStar also plans an upgrade path to a new device that should be available by the time this review appears. It will feature a 2.5-inch print head instead of the 1-inch head used by each of these printers, so it will be able to print wider labels.

There's very little to recommend the Avery Personal Label Printer. The hassle involved in using its software may be enough to drive you back to hand-addressing your envelopes.

— Paul Yi

Get Info

Avery Personal Label Printer

$$\frac{1}{2}$$

Manufactured by: Avery Commercial Products Division, 818 Oak Park Road, Covina, CA 91724; (818) 915-3851.
List Price: $279.95.

CoStar LabelWriter II

$$$$

Manufactured by: CoStar Corp., 22 Bridge Street, Greenwich, CT 06830; (203) 661-9700.
List Price: $249.

Seiko Smart Label Printer Plus

$$$\frac{1}{2}$$

Manufactured by: Seiko Instruments USA, Inc., 1130 Ringwood Court, San Jose, CA 95131; (408) 922-5900.
List Price: $259.

How to Master 20 Popular Macintosh Programs Without Ever Reading The Manuals

Macintosh Programs Can Be Learned in a Few Hours With the Right Training

Over the past four years I've been associated with over 50,000 people attempting to learn the Macintosh computer. I've watched as each person wages their own personal, private battle to master the computer and the most popular Macintosh programs.

I've seen their frustration, have empathized with their confusion, and understood their computer fears. I've talked to workers who have had new computers and new programs simply dropped on their desk with the directive to, "learn this." I've listened to people who have struggled night after night trying to read and understand a computer manual. Can you imagine trying to understand and master 4th Dimension from the manual?

You would be surprised at the number of people who have confided with me the fact that they've given up trying to learn some of the programs. They put the box on the shelf and write the expenditure off as a bad investment.

Hard Earned Money Wasted

Can you imagine how much money has been wasted on programs and computers that are sitting abandoned? Right now think of the people working on Macs in your office. Do they really understand the computer? Do they know what to do when it goes down? How many programs are each of your people using? Have they really mastered the programs they're using? Do they know the short-cuts and valuable techniques that will save you time, money, and increase your professionalism?

An Excellent, Low Cost Training Answer

Four years ago I founded MacAcademy. My purpose was to create a training organization that provided training similar in nature to the Macintosh itself - simple, easy to use, and effective.

Now, four years later the concept has proven to be a great success. Right now people are benefiting from MacAcademy training in over 100 cities in the U.S., in Canada, Great Britain, Australia, Japan, Hong Kong, and 22 additional countries throughout the world.

MacAcademy training is successful for one reason - it works!



The Video Answer

Two years ago we introduced the MacAcademy Video Training Library. This library now includes over 45 different titles. Each video is 2 hours long and offers clear, concise, effective training for the Macintosh and over 20 popular programs. In many cases you can purchase up to 6 hours of training for one program.

MacAcademy has resisted the temptation to follow competitive training programs who have recently implemented large price increases. Our videos started out at $49 each and are still only $49. The best training in the business for less than $50. This low cost training alternative has proven to be the Macintosh training choice of over 10,000 companies.

Guaranteed Results

The MacAcademy reputation is excellent. Our guarantee is simple: If you're not happy we'll give your money back. No hassles or problems.

To Order

Here is a current list of MacAcademy Video training tapes now available. To order, simply send check, credit card information, or purchase order to MacAcademy Videos Dept. MU 2/92 477 S. Nova Rd. Ormond Beach, FL 32174 or call the numbers listed below. Now is the time to start training. Thank you for allowing MacAcademy to help you in that effort.

To Order: Call Toll Free

1-800-527-1914

FAX Orders Call

1-904-677-6717

48 Hr. Delivery

- The Macintosh Part 1 ☐
- The Macintosh Part 2 ☐
- The Macintosh Part 3 ☐
- Macintosh Networks ☐
- Utilities, CDEV's, Inits ☐
- Using System 7 ☐
- HyperCard Basics Part 1 ☐
- HyperCard HyperTalk Part 2 ☐
- HyperCard HyperTalk Part 3 ☐
- Adobe Illustrator 3.0 Part 1 ☐
- Adobe Illustrator 3.0 Part 2 ☐
- Adobe Illustrator 3.0 Part 3 ☐
- Freehand 3.0 Part 1 ☐
- Freehand 3.0 Part 2 ☐
- Freehand 3.0 Part 3 ☐
- MacDraw Pro Part 1 ☐
- MacDraw Pro Part 2 ☐
- Canvas 3.0 Part 1 ☐
- Canvas 3.0 Part 2 ☐
- Canvas 3.0 Part 3 ☐
- SuperPaint Part 1 ☐
- SuperPaint Part 2 ☐
- Paints & Draws ☐
- PowerPoint ☐
- Persuasion Part 1 ☐
- Persuasion Part 2 ☐
- Design & Layout Techniques ☐
- PageMaker 4.0 Part 1 ☐
- PageMaker 4.0 Part 2 ☐
- PageMaker 4.0 Part 3 ☐
- QuarkXPress 3.1 Part 1 ☐
- QuarkXPress 3.1 Part 2 ☐
- QuarkXPress 3.1 Part 3 ☐
- Excel 3.0 Part 1 ☐
- Excel 3.0 Part 2 ☐
- Excel 3.0 Part 3 ☐
- Excel 3.0 Part 4 ☐
- WingZ Part 1 ☐
- WingZ Part 2 ☐
- WingZ Part 3 ☐
- Works Integration 1 ☐
- Works Word Processing 2 ☐
- Works Database 3 ☐
- Works Spreadsheet 4 ☐
- FileMaker Pro Part 1 ☐
- FileMaker Pro Part 2 ☐
- FileMaker Pro Part 3 ☐
- Word 4.0 Part 1 ☐
- Word 4.0 Part 2 ☐

CIRCLE 83 ON READER SERVICE CARD.

©1991 Florida Marketing International, Inc.

DATABASE MANAGEMENT

Easy4D and 4thRight! Professional

Easy4D succeeds where 4thRight! Professional fails at simplifying the 4D-application development cycle.

Easy4D and 4thRight! Professional are shells for ACIUS' 4th Dimension relational-database development environment. Although both were designed as fast routes for assembling custom applications that run in 4D's Runtime Environment, the two programs achieve widely differing results. Easy4D forges a genuine shortcut, but 4thRight! Professional takes a long detour.

You don't need to be a developer or programmer to use a 4D shell, but you should be comfortable working in 4D's User and Design Environments and have familiarity with creating simple procedures and scripts. The more you know, the better you can exploit a shell.

Good shells can hide many of the nitty-gritty details involved in building an application from scratch. Once you've learned the basic steps of hooking your database structure into the shell, you should be able to create basic multifile databases in a few hours.

As a result, a shell's design philosophy should be evident in its documentation, which should be extensive. Moreover, sophisticated designers should be able to look to the shell's layout and programming concepts for inspiration. In addition, as an extension of the 4D development environment, a shell's approach should mimic 4D's as much as possible.

Easy4D

Easy4D fulfills all these requirements. It emphasizes minimal coding and simplicity for the designer while also providing numerous features that can directly benefit users of completed applications. Easy4D is clean, consistent, and elegant throughout.

Easy4D's metaphors are drawn from applications that users are probably familiar with, including 4D, the Finder, and HyperCard. In fact, the program's documentation intentionally mirrors the structure of 4D's documentation.

To set up input layouts for most files, you simply copy Easy4D templates and paste them into the files; layouts are smart enough to configure themselves. By contrast, most other 4D shells require you to set up an initialization script.

After you've created your file structure and layouts, you do most of the remaining design work in Easy4D's database-administration area. This is where you connect layouts, reports, and procedures into the system. Easy4D's routines can read layout and procedure names from the file structure, so you simply choose the names as needed from pop-up menus.

Easy4D's Print Merge feature is also smart. It can detect whether the 4DWrite module is installed. If it is, it automatically provides a 4DWrite-based merge interface. Otherwise, it uses a layout-based interface that's quite good in its own right.

The Print Merge Glossary function is well crafted and mimics the same feature in Microsoft Word. Special editors let you design the header and footer areas of your merge document separately.

Easy4D includes a clever interface tool called pseudo-folders. It displays 4D-style reports, labels, and procedures as if they were documents in folders that could be nested and associated with specific files in your database. A Get Info feature lets you provide users with descriptive text for each document. With this feature, you can present users with several customized features that have a consistent interface.

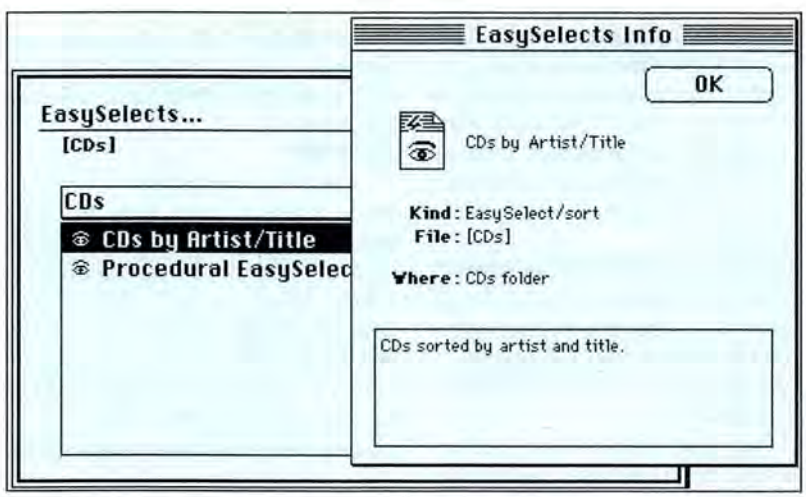
4thRight! Professional

4thRight! Professional demands much more from its users than does Easy4D but delivers far less functionality. Its structure file consumes a whopping 1.7 megabytes — nearly twice as much as the 1-megabyte Easy4D — *before* you add your own structures to it.

This shell has probably the largest collection of external procedures of any development package, and it includes Metropolis Software's DB/Write. Unfortunately, the programming interface for DB/Write is not well documented.

4thRight! Pro's tutorial claims that the 20 steps needed to set up a single file in 4thRight! Pro are significantly fewer than those necessary to do the same thing from scratch in 4D. Other shells, however, and most especially Easy4D, are far less tedious to set up.

But laborious setup is only the beginning of the program's long list of shortcomings. Its documentation contains some notable inaccuracies, such as the claim that using a minus sign prevents 4D from drawing a double menu bar. Even more annoying is the performance of 4thRight! Pro's interface, which is notably sluggish for uncompiled databases, even in its



Easy4D is a shell that shortens the 4D-application development cycle. A clever interface tool called pseudo-folders lets developers mimic the hierarchical organization of standard Open dialog boxes, including a useful Get Info feature. The folders are associated with specific files in a database.

Now, Multimedia ready.



Being the best at CD-ROM takes a big commitment.



Not to mention a little one.

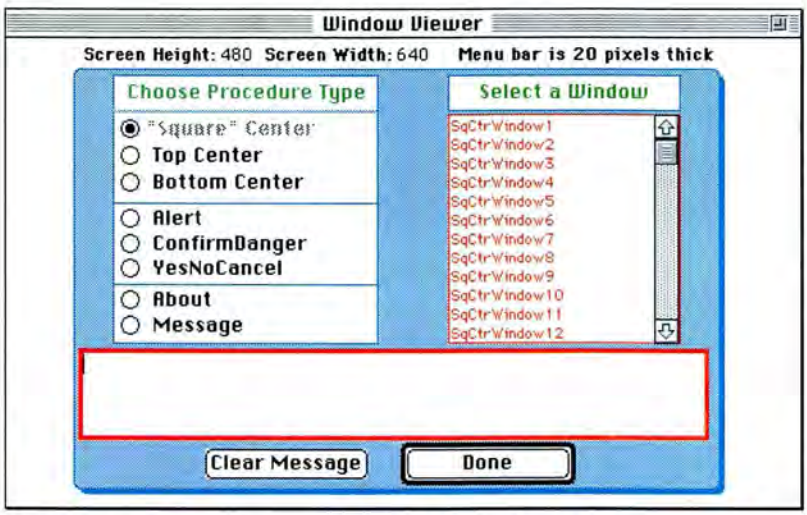
Whether we're coming up with big ideas, or small ones, NEC is always leading the way in CD-ROM. Take our readers. We have a complete line. With everything from high performance desktop models to the first truly portable* CD-ROM reader. The Intersect™ CDR-35. A product PC Magazine called one of the best of 1990. And winner of Systems Integration product of the year. A piece of CD-ROM technology topped only by our portable CDR-36M. What's more, our Intersect CDR-73M and CDR-83M drives have the fastest** data access rates in the business. In fact, with speeds of 280 milliseconds you might even be inclined to call them speed readers. All this from NEC. Whose CD-ROM products are known for their high quality and reliability. So high that we're offering a two-year limited warranty on every new reader. For product literature, or the nearest dealer location, call 1-800-NEC-INFO. CD-ROM from NEC. Our commitment to excellence is big. No matter what size the product.

*Battery powered. Introduced 9/89. **Based on published specifications of available drives from major manufacturers, 4/91. © 1992 NEC Technologies, Inc. Intersect is a trademark of NEC Technologies. PC Magazine is a registered trademark of Ziff Communications Co. PC Magazine, 1/15/91 issue, page 209, reprinted with permission.

CIRCLE 143 ON READER SERVICE CARD.

C&C Computers and Communications

NEC



Developing custom applications with 4thRight! Professional can be as time-consuming as using 4D itself. Part of the problem is the program's confusing abundance of procedures. Here, you must choose from 12 procedures to create a square center window.

"optimized" mode, which requires extra setup. We used the 4D debugger to confirm that a tremendous amount of code runs whenever operations such as opening a record are performed.

While reviewing the code, we found more dismaying features. A routine that's intended to halt operations until a record is unlocked, for example, can leave users stuck with no way to abort and no indication of what's happening. This procedure can also result in more network traffic than necessary. In addition, 4thRight! Pro's register system locks all counters when it needs to increment only a single counter.

Digital Concepts touts the quantity of 4thRight! Pro's procedures, but it provides quantity at the expense of quality. For example, the only difference among several alert procedures is two lines of code; a single procedure with the addition of one parameter would be more elegant. In fact, a plethora of window-drawing and alert procedures could be reduced to one or two by the judicious addition of a few parameters. The result of 4thRight! Pro's overzealous approach to procedures is a shell that has more commands than 4D itself!

Stylistically, 4thRight! Pro's layouts are often busy and cluttered. It also has a quirky trait of dimming radio buttons when they're selected, an approach that contradicts conventional interface guidelines and adds unnecessary procedural overhead (several dialog boxes are also guilty of using radio buttons when standard buttons would be more appropriate).

The Bottom Line

A good development shell provides the basic elements of a good database program while adding specialty features that set it apart from its rivals. If you're looking for a shell that teams outstanding features with a well-designed interface, choose Easy4D. It takes you over the hurdles of developing custom 4D applications quickly and efficiently. 4thRight! Professional, in contrast, can make the development process as cumbersome as using 4D.

— Louis E. Benjamin, Jr.

Get Info

Easy4D

tttt½

Published by: Natural Intelligence, Inc., 2067 Massachusetts Avenue, Cambridge, MA 02140; (617) 876-4876.
Version: Release 4.
List Price: $399.

4thRight! Professional

t

Published by: Digital Concepts, Inc., 10725 S.W. Barbur Blvd., Suite 220, Portland, OR 97219; (503) 244-4460.
Version: 2.0.1.
List Price: $695.

GRAPHICS & DESIGN

Painter

Fractal Design's software masterpiece makes you feel as if you're painting with natural media.

Painter is an artist's dream of a painting program that transcends the special effects of Oasis and PixelPaint Professional. Unlike those programs, Painter is designed specifically for replicating natural drawing and painting media, a difficult task at which it excels. Its unique effects make it the ultimate companion product for such programs as Photoshop or ColorStudio.

Users with Wacom graphics tablets will find that among Mac graphics programs, Painter uses a pressure-sensitive stylus to the best advantage. But even a lowly mouse can be used to control most aspects of Painter's brush dynamics.

Simulating natural media is one of the hardest challenges for graphics software. Until Painter, no other Mac program has been able to accurately reproduce natural brush dynamics and expression.

Painter's revolutionary brush tools are divided into several categories. Airbrushes, crayons, felt pens, chalk, charcoal, and pencils are all on the scrolling Brush palette. You can also find special-effects brushes, which include a water-drop tool (for softening edges and smearing paint), cloning brushes, two standard painter effects (based on the styles of Seurat and Van Gogh), and an eraser.

The modular design of the Tool palette lends itself to the addition of more brush types and effects. Each tool category has several variations. For example, multiple chalk settings include enlarged or sharpened tips as well as a softer pastel-like option. Custom brushes include an accurate calligraphy pen and a thick, rough-edged Japanese brush.

Painter supports adjustable anti-aliasing of brush edges as well as variable brush-tip dynamics. Its chalk tools are completely convincing, and we found the felt-pen tools simply uncanny. As you rub a felt-pen tool over the same area repeatedly, for example, it builds up density and saturation accurately. The program is so realistic that a yellow felt pen dragged over

If You Can't See The Difference, Why Pay The Difference?

©1991 RasterOps Corporation. All brand names and products are trademarks or registered trademarks of their respective holders.





The Popular $30,000 Printer.

The $10,999* RasterOps CorrectPrint 300.



Introducing The RasterOps CorrectPrint 300.

The only truly affordable photorealistic printer.

Until now, only high priced printers gave you high quality color output.

But here's the new RasterOps CorrectPrint 300. An incredibly inexpensive printer that uses dye sublimation technology at 300 dpi to give you dramatic, continuous tone color at every pixel, without dithering.

A printer that turns out low cost, professional-looking comps and proofs.

A printer that uses a 33-Mhz RISC processor to get the job done fast.

The new CorrectPrint 300 even includes PostScript®. And it has four networking ports for shared environments.

Wouldn't a printer like this, at a price like this, make a tremendous difference in your company?

Find out today. See your dealer or call 1.800.SAY.COLOR.

RasterOps®

THE ART & SCIENCE OF COLOR™

*Suggested retail price. Memory expansion kit required.

USA & CANADA • 1-800-248-0800 • OPEN 24 HOURS EVERY DAY

The Mac Zone

Established 1986

Our commitment:

- *Hassle-free ordering. No gimmicks and no hidden charges.*
- *30 to 60 day money back guarantee on most products. If you choose to return an item covered by a money-back guarantee, or is unopened, then simply call our Customer Service Hotline at 1-800-248-9948 for a Return Material Authorization Number.*
- *$3 shipping per order for overnight delivery on Airborne Express.*
- *Most of our products are System 7 Compatible. If you have any questions about compatibility just ask your Mac Advisor when ordering.*

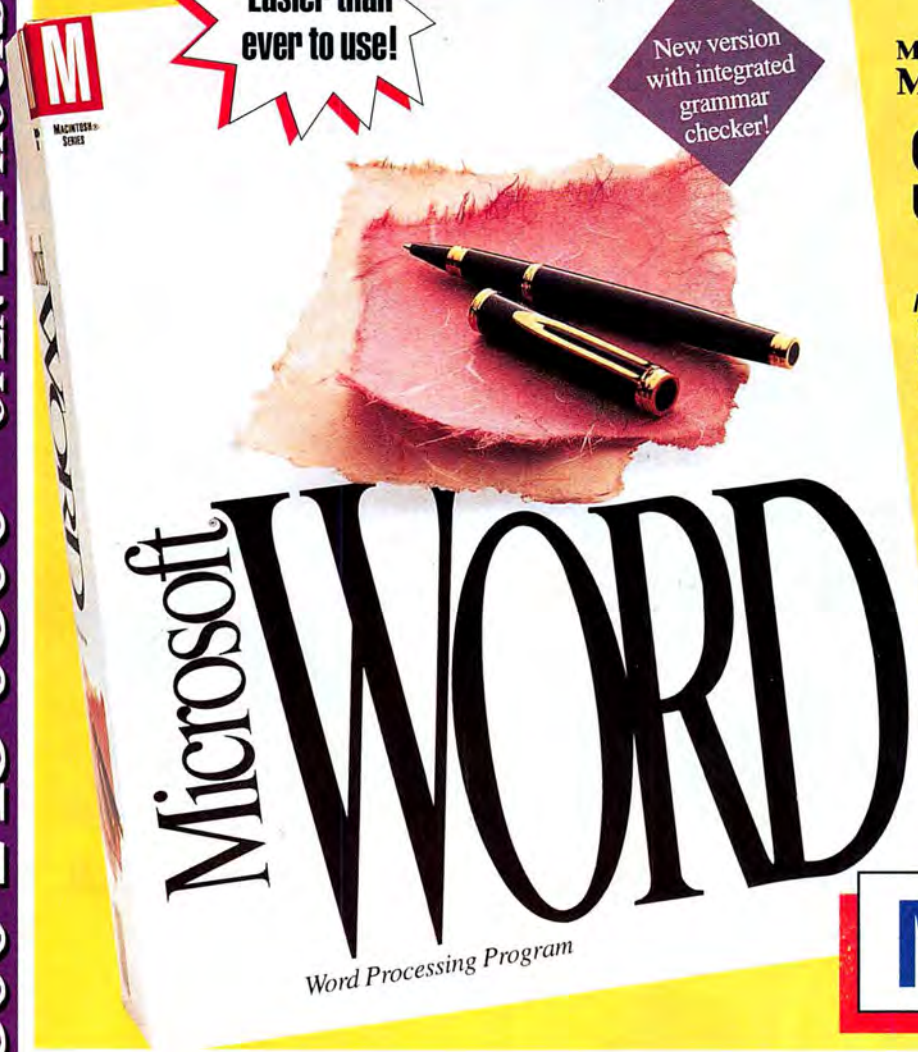
System 7 Compatible

Now! You can place your Mac Zone order through
CompuServe
Just Type:
Go MZ
Multiple Zones International, Inc.

NOW! Our Canadian customers' orders, in most cases, delivered within 24 hours. By special arrangement with Canadian Customs all applicable duties and GST taxes will be charged when placing your order with the Zone. Your products can now be delivered hassle free through Customs without delay. Shipping charges as low as $16 (US) via Airborne Express. Call for complete information.

Easier than ever to use!

New version with integrated grammar checker!



Microsoft Corporation
Microsoft Word 5.0

$299

Microsoft Word makes every day easy. The Ribbon lets you perform common tasks with a single mouse click. And a wealth of other helpful tools make it easier than ever to create everything from simple memos to newsletters and manuscripts.

- ***Intuitive Visual Interface:*** Makes it easy for beginners to quickly find their way around and for experts to do even complex tasks fast.
- ***Ribbon:*** Change fonts, format text, create multiple columns, use the drawing tools and more–all with one click of the mouse.
- ***Print Merge Helper:*** Click your way through simple or complex mail merges with ease; includes an automatic error checker.
- ***Balloon Help:*** Make full use of the System 7.0 pop-up Help features.

#4898

NEW!

Microsoft Corporation
Microsoft Office V1.5 $519

Four essential business-productivity applications in one: word processing, spreadsheet, desktop presentations, and electronic mail. Use MS Word to write memos and reports; MS Excel to crunch numbers and create quality graphics, MS Power Point to create presentations, MS Mail to instantly share information. #2678





Microsoft Corporation
Microsoft Excel 3.0

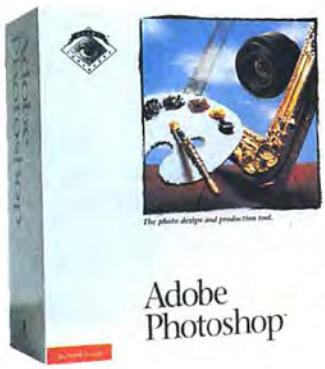
$299 The most advanced spreadsheet for the Mac! Microsoft Excel combines spreadsheet with business graphics and a database. Presentation tools like multiple fonts, variable row heights, shading, custom number formats, 68 built-in chart types and more, make Microsoft Excel the ultimate business tool. Tranfer Excel charts and worksheets into Word. #0227

#20201

The Word's Gone Out!
Mac Zone has the Most for the Least

The Mac Zone Established 1986

Se Habla Español



Adobe PhotoShop V.2.0

$548

Adobe Photoshop

Adobe Photoshop is the affordable image-processing program with enough power and versatility to be used as a paint, prepress, color correction and darkroom system–and it does it all in living 24-bit color! Whether you start with scanned photographs, slides or electronic artwork from scratch, Photoshop's full range of filters, painting, drawing and selection tools gives you the artistic control and precision you've been missing. #04042



NEW!

Quark Xpress 3.1

$579

XPress 3.1 boasts a more intuitive user interface, many new features, plus redesigned and reorganized documentation. New measurement and page palettes provide the user with interactive on-screen access. A library stores frequently-used items and a pasteboard provides work area next to each page. You can group text and graphics as single elements and rotate them a full 360° in 0.001 degree increments. Color trapping ensures precise color printing. #04736



$64 each

Architecture #3609
Interiors #3611
Landscape #3610

Abracadata Design Your Own Home

Novice to professional, you can now design your own home with these three complete programs: Architecture (floor plans to structural details), Interiors (furnishings to color schemes), and Landscape (flowers to fences). All include dozens of sample plans.



Pastel Development DayMaker $59

DayMaker is the first Macintosh product to combine scheduling, to-do lists, calendars, alarms, Gantt charts, addresses/phone numbers, categorization and personal organizer format printing–all in one integrated package. It does it all, fast and easy! #4752

WordPerfect $278 V.2.02

Brand new interface with an eye toward simplicity! Compact, easy-to-understand menus and streamlined dialog boxes give you access to all the regular WordPerfect features and many exciting new additions. #3972



Power of the Word!



Writing Tools Group, Inc. Correct Grammar 2.0 $49

Avoid embarrassing mistakes in letters, reports or proposals. Correct Grammar makes your writing clear and precise. It identifies inconsistencies in grammar, style, punctuation, usage and spelling, then suggests how to correct any errors. #3813



Articulate Systems, Inc. Voice Navigator II

$570

Control your Mac applications by voice! Voice Navigator II lets you format documents, control multimedia presentations, select tools and much more without ever hitting a key! Works with your particular voice, accent, language and Mac application. #3932

The Mac Zone
Established 1986

Mac Zone Has it All–New
Upgrade your Mac with these



1 Mb SIMMs

Incredible Price on 1 Mb SIMMs!

$42 per Mb

1x8x80ns #4737

Price Effective through 1/31/92

SIMMs LC (two 4mb Simms)	
#3976	$317
SIMMs 4x4 Mb for fx	
#3585	$759
LC SIMMs (two 2 Mb)	
#0014	$194
SIMMs 4x4 Mb '030	
#3583	$639



Applied Engineering 3.5" HD Disk Drive **$228**

Add a second 1.44 Mb drive to any SuperDrive-equipped Mac and make backups and disk copying easy. This 3.5" external high-density drive looks and performs like Apple's but costs much less. Features auto-eject, MS-DOS compatibility and AE's exclusive two-color read/write indicator light. #3672



PLI Infinity 40 Turbo **$649**

The Infinity 40 Turbo uses PLI's turbo-charged driver software to attain the speed of today's fastest hard disks. Plus, with TurboCache disk accelerator software, you can achieve near zero effective average access times. One cartridge and all necessary cables are included. #2181



Dantz Disk Fit Pro 1.0 **$69**

DiskFit Pro is fast, easy, efficient backup for your Mac. A few simple steps secure data against file corruption and hard disk failure. 'SmartSets' of floppies store files in Finder readable format, allowing retrieval directly from the backup. #4722



DayStar Digital FastCache IIsi **$309**

Increase your software's speed up to 45%...perfect for spreadsheets, graphics and databases. Shipped with DayStar's DualPort adapter providing a full-functional PDS slot and IIci cache slot. Optional math chip available. Guaranteed 100% capatibility. #4181



Mac Tech Distributors Lexus 2400 Bps Mini Modem **$89**

Compact 2400 baud modem, fully compatible with Hayes AT command set. Easy to install and ready to use, all cables included. Includes auto answer, auto dial and advanced diagnostics for error checking, MacKnowledge 1.02 MZ communications software and introductory membership to CompuServe and Genie. #0028



Raster Ops Rasterops 24 Stv 2536 **$1299**

New generation 24-bit true color display board with real-time video in a window. MediaGrabber program included to provide control over the display and capture of a single video frame or sequence of frames for use as an animation file. #0005



$308 Applied Engineering QuickSilver IIsi w/ FPU

QuickSilver gives your IIsi a slot extender, cache card and math-coprocessor (optional). The extender enables cards created for the SE/30 to fit neatly inside the IIsi case. 25ns static RAM cache provides quicker screen refresh, faster scrolling and rapid image manipulation. The 68882-20Mhz FPU option greatly increases speed of math-intensive applications. Five-year manufacturer's warranty. #04154

Call for our free catalog **1•800•248•0800** USA or Canada

- All major credit cards accepted. No surcharge.
- Your credit card is not charged until your order is shipped. For domestic orders, if we must ship a partial order, freight is not charged on backorder. (USA only)
- Most personal and company checks received by mail will clear immediately. All checks or purchase orders must have a phone number and contact person listed in order to be processed.
- C.O.D. orders are accepted: Limit $1,000 per order. Cashier's check or money order only. Add $5.00 per C.O.D. order.
- Educational, government and corporate purchase orders are accepted.
- All U.S. shipments insured at no extra charge.
- No sales tax, except for Washington State residents (add 8.2%).
- Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. Please call for current prices.
- All products covered by 120 day limited warranty.
- Shipping is $3 per order. We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery).
- Monitors are assessed an additional shipping charge. $25.00 for Full Page, $50.00 for Two Page. UPS Rates are also available upon request.
- Orders placed by 9 pm ET (6pm PT) weekdays for "in stock" items will ship that day for overnight delivery (barring system failure, etc.).
- APO/FPO/PO box orders are shipped first class U.S. Mail.
- **Defective software will be replaced immediately, and hardware will be repaired or replaced at our discretion.**
- **A Return Authorization Number is required for any product returned. For Customer Service call 1-800-248-9948. Please call weekdays from 6am to 8pm PT, 9am to 11pm ET.**

Mac Zone 18005 NE 68th ST, Suite A110
Redmond, WA 98052
International: 206-883-3088 • FAX: 206-881-3421

#20201

Products Added Every Day
Hardware and Connectivity Solutions

Now Open 24 Hours

The Mac Zone Established 1986

OVERNIGHT DELIVERY $3 • 1-800-248-0800 • BY AIRBORNE EXPRESS



Shiva Netmodem V.32 9600 $1149

This 9600 bps modem was designed to be shared over AppleTalk. NetModem also includes Dial-In Network access software which allows a remote Mac or PC to dial into the network and use electronic mail, printers and other network resources. #3251

#4129 Shiva Netmodem/E 10 Base T $1748

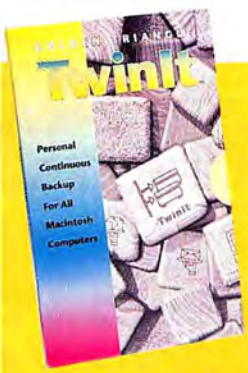


NEW!

Farallon Star Controller En Pn 357 $1049

Manage and expand your network easier than ever. Star Controller hub's patented circuitry amplifies LocalTalk signals up to 1M bps. With StarCommand V3.0 software manage your StarController hubs from any Mac computer on their network. #4738

#0420 Tumbuktu V4.0 Single User ..... $129 #0353 Phonenet Cd Pc Localtalk Pn380 .. 208
0829 Star Controller 300 Series ..... 824 #0832 Phonenet - Din-8 32



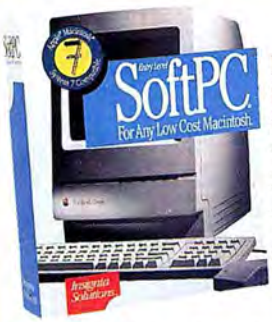
Golden Triangle Twin-It $189

Other backup systems make periodic backups of your disk to a tape or floppy. But for the price of TwinIt and a second disk, you can maintain a continuous backup created automatically as you work. Continuous, automatic, inexpensive, it works with all Macs.



Disk Twin $699

Make an up-to-the-instant copy of one hard disk to another automatically. DiskTwin is ideal for file or mail servers because it doesn't affect server performance. It also provides advanced features such as automatic cutover to keep your Mac on line even through a disk crash. #4724



Insigna Solutions Soft PC Entry Level 2.5 $125

SoftPC brings the vast world of PC software to your Mac. Entry Level emulates an IBM PC/AT and is ideal for text-based applications and limited graphics programs. #4540

#4541 Soft PC Universal 2.5 ..... $194



Cayman Systems Gator Box CS $1955

Connects an entire Macintosh network on LocalTalk to high speed Ethernet! Now Mac users on LocalTalk can communicate with most minicomputer, workstation and PC users on Ethernet. Features 2 Mb of RAM, hardware and software diagnostic capabilities and a universal power supply. #0181

Shiva Shiva Fast Path V $1899

FastPath V gateway allows Macintoshes on a LocalTalk network to acxcess Ethernet network systems and services AND Ethernet-based machines to access AppleTalk on a LocalTalk network. *Everyone* has company-wide access to printing, electronic mail and file servers wherever they're located. #4038





Microtek TrueLaser Printer 3 Mb of Memory $1399

Tomorrow's printer–today, TrueLaser is the first laser printer that's fully PostScript, TrueImage, and PCL compatible. It's also the first to come bundled with 35 resident TrueType fonts. You get faster printing and even auto-switching between interfaces. #04047

SAVE THIS COMPLETE LIST • 1-800-248-0800 • CALL US

The Mac Zone
Established 1986

New Open 24 Hours

Our Latest Macintosh

ACCELERATORS & INTERNAL BOARDS

Applied Engineering
4072 Cache In 50 W/ Fpu ... 1899
3673 Quadralink ... 204
4155 Quicksilver II Si Math Chip ... 89
4154 Quicksilver II Si W/Fpu ... 308
0833 Quicksilver IIsi Cache Card ... 269
4325 Transwarp Se Accel 25Mhz w/Fpu 815
Connectix Corporation
2654 Virtual - Se/30, IIx, IIcx ... 114
2652 Virtual W/Pmmu Mac II 2.0.4 ... 187
Daystar Digital
4183 Dual Port IIsi No Fpu ... 104
4182 Dual Port IIsi W/Fpu ... 169
2877 Fast Cache IIci 64K Ram ... 278
4181 Fast Cache IIsi ... 309
3730 Ram Powercard W/O Simms ... 499
3729 SCSI Powercard W/O Simms ... 1124
4323 Universal Powercache 33 Mhz ... 749
4634 Univ. Powercache 33 Mhz w/FPU ... 979
4319 Universal Powercache 40Mhz ... 948
4320 Univ. Powercache 40Mhz/Fpu ... 1199
4321 Universal Powercache 50 Mhz ... 1499
4322 Univ. Powercache 50Mhz/Fpu ... 1999
Dove Computer Corp
3499 030 Upgrade IIx ... 249
3228 030 Upgrade Mac II ... 528
3229 030 Upgrade Se ... 435
3818 Macsnap 596Xs 512Ke-4Mb w/SCSI 455
3230 Marathon 030 Upgrade Plus ... 528
1260 SCSI Port Adapter Macsnap ... 99
3822 Upgrade 030 IIx W/Virtual ... 528
3821 Upgrade 030 SE30 W/Virtual ... 528
Harris Laboratories
4646 Classic Performer Accelerator ... 249
4647 68881 Math Coprocessor Upgrade ... 74
PLI
0811 PLI Quick SCSI ... 399
4109 SCSI II Card PsII ... 201
Radius
4207 Radius Rocket ... 1799
Sigma Designs
4220 Bullet 030 50Mhz W/Double Up ... 1399
0215 Sigma Double-Up Board ... 159
Storm Technology
4336 Picture Press 2.0 W/Accelator ... 649
Total Systems
4084 Galileo 62P-Nubus ... 419
0531 Gemini Classic 33 Mhz No Fpu ... 1449
0545 Enterprise 030 Lc 16Mhz ... 609
4006 Gafile Video Card Plus ... 419
4292 Galileo II Video Card Plus ... 510
3633 Gemini 030 20Mhz W/Fpu ... 849
2902 Gemini 030 20Mhz W/O Fpu ... 798
2903 Gemini 030 25Mhz W/O Fpu ... 1199
0527 Gemini Classic 20 Mhz No Fpu ... 949
0528 Gemini Classic 20 Mhz W/Fpu ... 1049
0529 Gemini Classic 25Mhz No Fpu ... 1179
0530 Gemini Classic 25Mhz With Fpu ... 1349
0537 Gemini Classic 33 Mhz With Fpu ... 1749
0538 Gemini Classic 40 Mhz No Fpu ... 1549
0540 Gemini Classic 40 Mhz With Fpu ... 1749
0546 Gemini Classic 50 Mhz No Fpu ... 1699
3752 Gemini II 030 40Mhz W/Fpu ... 1850
0532 Gemini Ultra 33 Mhz No Fpu ... 1379
0534 Gemini Ultra 33Mhz With Fpu ... 1679
0535 Gemini Ultra 40Mhz No Fpu ... 1479
0536 Gemini Ultra 40Mhz With Fpu ... 1849
3632 Gemkit (Intl. Version) ... 125
2899 Gemkit (U.S. Version) ... 125
0291 Magellan 040 Board IIsi ... 1995
0292 Magellan 040 Board Se/30 ... 1995
0295 Magellin Board 040 IIci ... 2195
0034 Mercury 030 16Mhz W/Fpu (Plus) 675
0041 Mercury 030 16Mhz W/Fpu (SE) ... 550
0043 Mercury 030 16Mhz W/O Fpu (SE) 358
0036 Mercury 030 16Mhz W/O Fpu Plus 518
0526 Mercury Classic 16Mhz No Fpu ... 549
0525 Mercury Classic 16Mhz W/Fpu ... 749
0050 Mercury Kit ... 104
0049 Mercury Ram Module ... 245
0048 Mercury SCSI Module (Plus) ... 188
Motorola
2151 68882 Math Co-Processor 16Mhz ... 130
2152 68882 Math Co-Processor 25Mhz ... 180
2425 68882 Math Co-Processor 33Mhz ... 213
2719 68882 Math Co-Processor 40Mhz ... 299
2723 68882 Math Co-Processor 50 Mhz 349
2513 SCSI Tester ... 39

ACCOUNTING

Aatrix
0192 Checkwriter II 3.2 ... 29
1871 Payroll 4.0 ... 108
1875 Ultimate Payroll 4.1 ... 198
1872 Ultimate Payroll 4.4 MultiCmpy ... 309
Absolute Solutions
3369 Computerized Classic Acctg ... 223
Addison Wesley
4590 Essentials of Accounting ... 34
Checkmark Software
2412 Cash Ledger ... 114
2410 Multiledger 1.3 ... 234
2411 Payroll 4.5 (use w/Multiledgr) ... 174
Chipsoft
3528 If:X Dod Expense Reports - Mac ... 47
3529 If:X Gsa Expense Reports - Mac ... 47
3527 If:X Payroll Tax Assistant ... 79
Claris
4306 Claris Resolve ... 269
Computer Associates - Bedford
4475 Accpac Bedford For Mac 1.2 ... 138
Dac Software
4312 DacEasy Light Chkbook Acct 2.0 ... 19
In House Software
3782 In House Accoutant ... 135
Inman Software
0229 Business Sense 1.4.1 ... 128
Nolo Press
3781 For The Record 2.0 Mac ... 31
0481 Will Maker 4.0 ... 34
Peachtree Software
2594 At Once! ... 189
4138 Crystal Accounting ... 189
2595 Insight Expert Accts Pay. ... 295
2596 Insight Expert Accts Rec. ... 295
Reality Technologies
3769 Wealthbuilder Mac ... 94
Shopkeeper Publishing
4599 Bill-It ... 114
4111 Shopkeeper Mac ... 249
Softsync/Bloc
3986 Accountant Inc. 2.1 ... 338
Survivor Software
2814 Invoicit ... 48
1582 MacMoney 3.5 ... 58
Teleware Incorporated
3535 M.Y.O.B. 2.0 ... 138
The Software Toolworks
3464 Dollars and Cents 5.0 Sense ... 62
Timeslips
2512 Timeslips III 2.0 ... 194

BOOKS

Addison-Wesley
0250 System 7 Revealed ... 18
1585 Inside Macintosh, Vol. 1 ... 18
1586 Inside Macintosh, Vol. 2 ... 18
1587 Inside Macintosh, Vol. 3 ... 18
1588 Inside Macintosh, Vol. 4 ... 18
1629 Inside Macintosh, Vol. 5 ... 18
0249 Inside Macintosh, Vol. 6 ... 27
1969 Inside Macintosh, X-Ref - ... 8
3200 Mac Prog Primer Vol.2 ... 21
4177 Macintosh Prog Primer Vol. 1 ... 21
2473 Macintosh Prog Secrets ... 19
2864 Progrmrs Online Companion 2 ... 35
Bantam-Double Day-Dell
1395 Hypercard Handbook 2.0 ... 21
2439 Mastering Wingz ... 17
Compuserve
0813 Compuserve Almanac ... 10
Electronic Arts
4303 Sim Earth Strategy Guide ... 18
Goldstein & Blair
3816 Mac Bible + What Do I Do + Sof ... 29
4093 Mac Bible Guide to Filemaker Pro ... 11
0375 Mac Bible Guide to System 7 ... 8
3815 Macintosh Bible + What Do I Do ... 24
3814 Macintosh Bible 3rd Edition ... 18
Harper Collins Publisher
4068 Kawasaki's Selling The Dream ... 18
Microsoft Press
4099 Apple Mac 4th Edition ... 19
4097 DTP By Design-Pagemaker ... 18
4102 Get Started W/ Microsoft Word ... 15
4101 Getting Started W/ Apple Mac ... 15
4098 Macintosh C Programming Primer ... 17
4104 Microsoft Excel 3.0 Companion ... 15
4103 Object Oriented Prog Think Pas ... 25
4100 Works For The Macintosh ... 18
Redgate
4461 Oct./Dec. Mac Registry ... 15
Ventana Press, Inc.
4238 The System 7 Book ... 21

CABLES

C Enterprises
1081 Ab Box Din-8 W/ 1 Cable ... 32
1082 Abcd Box Din-8 W/ 1 Cable ... 62
0864 Cable Din-8 To Imagwrtr II 15' ... 32
0097 Db-9 To Imagewriter 2 Cable 6' ... 18
0098 Db-9 To Imagewrt 2 Cable 20' ... 32
0866 Din-8 - Imagewriter 2 Cable 6' ... 18
0096 Din-8 To Imagewriter 1 Cable 6' ... 18
0091 Din-8 To Imagewriter 2 Cable 15' ... 14
0094 Mac 512K To Modem D9M/D25M 6' 18
0090 Mac Plus SW/II Modem Cable 6' ... 18
2145 SCSI Cable M25-M25 6' ... 12
0667 SCSI Cable M25-M50 18 ... 25
1917 SCSI Cable M25-M50 6' ... 34
1085 SCSI Cable M50-M50 18 ... 25
2461 SCSI Cable M50-M50 6' ... 29
0856 SCSI Terminator ... 25
.3360 Mac II Monitor Cable Ext. Kit ... 32
3359 Xtra Long ADB Keyboard Cable ... 24
Mac Tech
3131 Mac II Ext Cable Kit ... 10
Orange Micro
1435 Grappler 9 Pin (C/Mac/Gs) ... 91
2080 Grappler Mac Ls ... 70
3015 Grappler Mac Lx ... 109
2430 Grappler Spooler ... 46

CD ROM DRIVES

NEC Home Electronics
4301 CDR 73 W/General Ref CDgr7M1 ... 739
4133 NEC CDR-36 W/General Ref. ... 499
0077 NEC CDR-36/TypeGall. CD-Tkm1 ... 475
0079 NEC CDR-73 Drive ... 659
PLI
3691 PLI CD Rom Drive ... 699
4237 PLI CD Rom Drive 220V ... 699
Toshiba
3536 CD Rom Drive Xm-3201A ... 795

CD ROM TITLES

Activision
3493 Cosmic Osmo CD ROM ... 45
2541 Manhole CD ROM ... 37
Bureau Of Electronics
4470 Countries Of The World ... 279
4468 Greatest Book ... 159
4467 Monarch Notes ... 54
4345 Pioneer Bundle ... 219
4469 US History On CD ROM ... 219
Medialac Tech
3777 Icon Factory 1.1 ... 44
3775 Script Library 2.0 ... 56
Microsoft Corporation
3233 Microsoft Office CD ROM ... 598
Quantum Leap Technologies
0150 CD7 ... 49
0152 Giga-ROM ... 98
0151 Macademic Vol. 1 ... 73
Softstream International Inc.
3466 Hyperhit I ... 118
3469 Hyperhit II Relational ... 239
Sunshine
4331 Visual Delights CD ROM ... 209
Tactic Software
4219 Tactic Multimedia CD-ROM ... 149
The Software Toolworks
0515 Groliers Illustraded Ency. ... 239
0516 Xiphias Timetable of History ... 79
Wayzata Technology Inc.
3506 All Of Mac Tutor ... 155
3510 Baseball Guide And Reg ... 155
3863 CD Funhouse ... 39
4043 EPS Professional ... 189
0472 Front Page News ... 89
4565 GAIA Environmental Resources ... 149
3512 Gem (Public Domain) ... 75
0242 Korean War ... 79
0025 Middle East Diary ... 85
4564 Photobank Volume 1 ... 114
3504 Quick Art ... 174
3505 Seals Of The Us Govt. ... 55
4471 Terrorist Group Profile V3.09 ... 49
3509 The CIA World Factbook ... 78
3508 The USA Factbook ... 85
0243 U.S. Presidents ... 25
3511 Vietnam Remembered ... 78
4044 Washington Times & Insight ... 94

CHARTING SOFTWARE

Delta Point
3291 Deltagraph 1.5 ... 124

CLIP ART

3G Graphics
3192 Images w/Impact-Accents & ... 64
2085 Images w/Impact-Business 1 ... 64
1617 Images w/Impact-Graphics & S ... 49
0421 Images w/Impact-People 1 ... 94
Adobe Systems Inc.
2431 Smart Art 1 ... 64
2620 Smart Art 2 ... 58
2621 Smart Art 3 ... 64
3484 Smart Art 4 ... 58
Artbeats
4652 Dimensions Vo. 1 ... 69
4653 Dimensions Vol. 2 ... 69
4654 Dimensions Vol. 3 ... 69
4655 Natural Images Vol. 1 ... 69
4656 Natural Images Vol. 2 ... 69
4657 Potpourri Vol. 1 ... 69
4658 Full Pg Images EPSF Library ... 349
4659 Full Pg Images CD ROM ... 349
4660 Backgrnds for Multimed.Vol.1-Disks 169
Dream Maker Software
3998 Cliptures Vol. 1 Business ... 67
3999 Cliptures Vol. 2 Business ... 67
4000 Cliptures Vol. 3 Sports ... 67
4282 Vol. 4: World Flags ... 67
Dublclick Software
1869 Wetpaint Animals Vol.5&6 ... 56
1100 Wetpaint Classic Vol.1&2 ... 56
1879 Wetpaint Industrial Vol.11&12 ... 56
1881 Wetpaint Island Life Vol.15&16 ... 56
1880 Wetpaint Old Earth Vol.13&14 ... 56
1878 Wetpaint Printer's Vol.9&10 ... 56
1868 Wetpaint Publishing Vol.3&4 ... 56
1870 Wetpaint Special Ccc Vol.7&8 ... 56
2318 Wetpaint The People Vol.17&18 ... 56
Foundation Publishing
1394 Comic People Vol. 1-Office ... 20
3227 Comic People Vol. 2-Kids Stuff ... 20
Micromap Software
4356 Map Art - EPS ... 89
4355 Map Art - Macpaint ... 39
4357 Map Art - Pict ... 89
NEC Home Electronics
0085 Clip Art 3-D Cd3Dm001 ... 245
0081 Image Gallery #Cdig001 ... 245
0082 Photo Gallery #Cdpg001 ... 245
Online Arts
0178 Business Images (Online Arts) ... 79
T Maker
3334 Click Art Business Cartoons ... 31
1052 Click Art Business Images ... 31
3460 Click Art Christian Images ... 31
0754 Click Art Holidays ... 31
0749 Click Art Personal Graphics ... 31
3606 Clickart EPS Animals And Nature ... 82
0456 Clickart EPS Sports And Games ... 82
0455 Clickart EPS Symbols And Indus ... 82
0457 Clickart Publications ... 31
3459 EPS Business Art ... 82
2012 EPS Illustrations ... 82
Tactic Software
2856 Artclips 1st Ed. ... 49
2857 Artclips 2nd Ed. Business Images ... 64
Uncle Milty's Clip Art
4273 Uncle Milty's Clip Art ... 34

COMMUNICATIONS SOFTWARE

Cc:Mail
4474 Cc:Mail Mac Platform Plp400 ... 314
Century Software
4308 Century Term For Mac ... 150
Compuserve
0213 Compuserve Mac Mbrshp Kit ... 22
2625 Compuserve Navigator 3.0 ... 48
Freesoft Co.
2553 Second Sight 2.0 Redrydhost ... 85
2881 White Knight 11 ... 84
Hayes
4497 Smartcom II 3.3 ... 83
Prometheus
2849 Promodem Macknowledge ... 84
Software Ventures
1902 Microphone II 3.0 ... 209
Synergy Software
0198 Versa Term Pro V3.5 ... 169
0643 Versa Term V4.5 ... 89

COMPUTER EQUIPMENT COVERS

Basic Needs Inc.
0103 Cover Apple Imagewrtr II ... 11
0107 Cover HP Deskjet/Deskwrtr ... 11
0108 Cover HP Laserprinter II/IIi ... 15
0100 Cover II/X/Fx Mon Ext Kb ... 17
0105 Cover Imagewriter LQA ... 15
0106 Cover Laserwriter II ... 17
0044 Cover Mac Classic With LC Kb ... 16
0089 Cover Mac IIcx/ci Mon Ext Kb ... 17
0102 Cover Mac IIsi Mon Ext Kb ... 17
0104 Cover Mac LC Mon LC Keybd ... 17
0058 Cover Mac Plus W/Plus Kb ... 16
0130 Cover Mac SE W/Std Kb ... 16
0132 Cover SE/Ext Kb ... 16
0124 Hardtop Apple Imagewrtr II ... 15
0123 Hardtop Datadesk 101 Keyboard ... 16
0113 Hardtop Mac Extended Keyboard ... 16
0110 Hardtop Mac LC Keyboard ... 15
0109 Hardtop Mac Plus Keyboard ... 15
0111 Hardtop Mac Std Keyboard ... 15
0127 Utility Pac ... 15
Kensington
2978 Dust Cover SE Ext. Keyboard ... 9
0329 Keyboard Shell Compact Mac ... 39
0330 Keyboard Slideaway ... 34
3361 Dust Cover SE Std. Keyboard ... 9
3362 Imagewriter II Dust Cover ... 9
Smack A Mac
3756 "Cover 13" Mon & Ext Keyboard ... 18
3754 Cover SE/Plus Ext. Keyboard ... 17
3755 Cover SE/Plus Std. Keyboard ... 17

COMPUTER LUGGAGE

I/O Design
3792 Imagewriter II Bag - Black ... 48
3875 Imagewriter II Bag - Blue ... 48
3876 Mac Lugage SE 30 / SE Ext Blue ... 74
3793 Mac Luggage Classic/SE - Black ... 64
3794 Mac Luggage Class/SE Ext Blk ... 74
3878 Mac Luggage Class/SE Ext Navy ... 74
3907 Mac Luggage Class/SE Navy ... 64
3795 Mac Luggage II/IIfx - Black ... 98
3796 Mac Luggage IIcx/Ci/Si - Black ... 84
3879 Mac Luggage IIcx/Ci/Si - Blue ... 84
4693 Ultimate Class/Se Ext Agua ... 78
3797 Ultimate Class/SE Ext Black ... 78
4694 Ultimate Class/SE Ext Magenta ... 78
3791 Ultimate Class/SE Ext Navy ... 78
4696 Ultimate Classic/SE Agua ... 68
3905 Ultimate Classic/SE Black ... 68
4695 Ultimate Classic/SE Magenta ... 68
3906 Ultimate Classic/SE Navy ... 68
0721 Ultimate Mac LC W/12 Mon-Blk ... 94
0722 Ultimate Mac LC W/12 Mon-Blue ... 94
4697 Ultimate Mac LC with Kb-Black ... 59
4686 Ultimate Mac Notebcok Case ... 79
3788 Ultimate SE Neon - Green ... 68
3789 Ultimate SE Neon - Yellow ... 68
4592 Ult. SyleWriter Carry Case Black ... 49
Linebacker
1352 Macpack Bag Mac/SE Xkb Navy ... 69
2090 Macpack Bag Mac/SE Xkb Grey ... 69
2089 Macpack Bag Mac/SE Xkb Wine ... 69
0499 Macpack Bag Plus/SE Reg. Grey ... 55
0498 Macpack Bag Plus/SE Reg. Navy ... 55
0493 Macpack Bag Plus/SE Reg. Wine ... 55
0494 Macpack Imagewrtr Bag Navy ... 45
0491 Macpack Imagwrter Bag Wine ... 45
PLI
3692 PLI Case Infinity Turbo 40 ... 60
Targus
2546 Targus Bag Mac/SE Reg. Black ... 58
2545 Targus Bag Mac/SE Xkb Black ... 74
2630 Targus Bag Mac/SE Xkb Grey ... 74
2629 Targus Bag Mac/SE Xkb Wine ... 74
3476 Targus Bag Cx/Ci Black ... 74
2628 Targus Imagewriter Bag Black ... 45

DATABASES

Acius
3605 4Th D 2.1 Compiler ... 879
3331 4Th D 2.1 Runtime 4 User Pk ... 249
3332 4Th D 2.1 Runtime Sgl User ... 79
2648 4Th Dimension 2.2 ... 484
3973 4Th Dimension Write ... 229
3330 Fileforce ... 164
Blyth Software
2538 Omnis 5 2.1 ... 648
Casio
3337 Casiolink For Mac ... 98
3336 Casio Boss SF-8000 ... 139
Claris
3478 Filemaker Pro ... 214
Digital Concepts
4566 4th RIGHT! ... 249
4566 4th RIGHT! Professional ... 449
Fox Software
2581 Foxbase+/Mac 2.01 ... 264
2582 Foxbase+/Mac Multi User 2.0 ... 398
2163 Foxbase+/Mac Runtime 2.0 ... 189
Microsoft Corporation
0557 Microsoft File 2.0 ... 123
New Era Software Group
4185 Nubase For The Mac ... 179
Odesta
2210 Data Desk 3.0 ... 458
2661 Double Helix 3.5 Multiusr Kit ... 449
0609 Double Helix V3.5 ... 438
Preferred Publishers
2074 Database 1.5 ... 66
Provue
4299 Panarama II ... 248
Software Discoveries
3760 Record Holder Plus ... 84
Symmetry
4300 Acta 7 ... 74

DESKTOP PUBLISHING

Aldus Corp.
3898 Aldus Design Team ... 888
3223 Aldus PageMaker 4.2(PrePrint Bndl) 497
4309 Aldus PrePrint 1.5 ... 328
3880 Personal Press 1.0 ... 198
Altsys
1139 Fontastic Plus ... 49
0349 Metamorphosis Profes. ... 88
Broderbund
1015 Print Shop ... 34
Frame Technology Corp
3582 Frame Maker 3.0 ... 594
Letraset Graphic Design
1370 ReadySetGo! 4.5 ... 164
Postcraft International
4215 Flyer Pack A (PageMaker) ... 34
4217 Flyer Pack B (PageMaker) ... 34
4087 L/O Stat Combo Quark Xpress ... 54
4278 Layouts-Design Studio ... 79
4162 Layouts-Quark ... 79
4085 Layouts-PageMaker ... 79
Quark Inc.
3488 Quark Xpress 3.1 ... 549
Timeworks
3798 Publish It Easy 2.0 ... 138
Ventura Software - Xerox
3909 Ventura Publisher for Mac ... 498

DISK STORAGE ACCESSORIES

Allsop
4224 Disk File /30 Micro ... 7
4222 Disk File 80/Micro ... 11

DRAFTING AND CAD

Abracadata
3609 Design Your Own Home Architect ... 64
3611 Design Your Own Home Interiors ... 64
3610 Design Your Own Home Landscape ... 64
Claris
3693 Claris Cad 2.0 ... 628
4436 Claris Graphics Translator ... 219
Design Cad, Inc.
4180 Design Cad 2D/3D ... 378
Generic Software
0141 Generic Cadd Classic Upgr ... 98
3679 Generic Cadd Macintosh ... 374
Graphsoft
3289 Blueprint 2.0 ... 218
3540 Minicad Plus 3 ! ... 594
Innovative Data Design
2015 Dreams 1.1 For Mac ... 399
0429 Macdraft 2.1 ... 278
Mathsoft
4167 Math Cad 2.0 Mac ... 319
DRAWING
Claris
2200 MacDraw II ... 149
Broderbund
3970 Banner Mania-Mac ... 34
Claris
4073 MacDraw Pro ... 284
Foundation Publishing
1237 Comic Strip Factory ... 36
Zedcor, Inc.
3454 Deskpaint/Deskdraw 3.0 3 ... 112

EDUCATION

Beacon Technology Inc.
0246 Gems Of The Word KJV ... 25
0245 Gems Of The Word NIV ... 25
0247 HyperBible 2.0 KJV ... 124
0248 HyperBible 2.0 NIV ... 124
Bible Research
0186 The Word Processor 5.0 KJV ... 150
0187 The Word Processor 5.0 NIV ... 150
0188 The Word Processor 5.0 NKJ ... 150
0189 The Word Processor RSV ... 150
Bright Star
1614 Alphabet Blocks 1.10 ... 29
1941 Talking Tiles 1.0.2 ... 25
Brøderbund
1986 Calculus Mac ... 57
0892 Geometry ... 57
1985 Physics ... 57
4197 The Playroom 2.0 Mac ... 28
2086 Type! ... 17
Carina Software
3027 Voyager 1.2 ... 86
Davidson & Associates
4577 Spell It Plus ... 49
4578 Earthquest Ecology Explorers ... 59
3848 Alge Blaster Plus ... 35
0223 Math Blaster Mystery ... 28
0825 New Math Blaster Plus ... 34
3847 Personal Trainer For The SAT ... 35
3588 Spella-Saurus ... 30
0225 Speed Reader ... 28
Earthquest, Inc.
3661 Earthquest (Hyperstack) V2.0 ... 48
Great Wave
0392 Decimals And Fractions, Color ... 33
2753 Kidsmath ... 25
0357 Kidstime ... 25
2445 Numbermaze-Black And White ... 25
4249 Reading Maze B/W ... 24
4248 Reading Maze W/Color ... 34
Individual Software
0436 Individual Training For Word ... 29
3758 Individual Training For Pgmkr 4.0 ... 29
3988 Professor Mac ... 29
3759 Typing Encore 3.5 ... 17
Interplay
4256 Dvorak On Typing ... 31
Knowledge Revolution
0260 Interactive Physics 1.2.2 ... 188
Learning Company
2593 Math Rabbit ... 34
1856 Talking Reader Rabbit 3.0 ... 33
Mecc
0072 Number Munchers ... 28
0074 Oregon Trail ... 28
0500 Super Munchers ... 28
0073 Word Munchers ... 28
Nordic Software
3101 Mackids Preschoolpack ... 34
1931 Turbo Math Facts ... 22
3102 Word Quest ... 30
PC Globe, Inc.
4328 MacGlobe ... 44
Personal Training Systems.
4294 (Pts) System 7 Tutorial Vol. 1 ... 49
3044 B2 The Basics (Mac Plus Or SE) ... 49
3045 B3 The Basics (020 And 030 Wi) ... 49
3046 B4 Beyond The Basics ... 49
3059 Fh1 Beginning Aldus Freehand ... 49
3060 Fh2 Intermed. Aldus Freehand ... 49
3061 Fh3 Special Fx Aldus Freehand ... 49
3062 Fh4 Precision Aldus Freehand ... 49
3075 Fm1 FileMaker Creating Datab ... 49
3076 Fm2 FileMaker Beg. Layouts ... 49
3077 Fm3 FileMaker Adv. Layouts ... 49
3078 Fm4 FileMaker Tips And Techniques 49
3923 Fm5 Advanced Features FileMaker ... 49
3067 Lp1 Beginning Aldus Persuasion ... 49
3068 Lp2 Intermed. Aldus Persuasion ... 49
3069 Lp3 Templates Aldus Persuasion ... 49
3070 Lp4 Artwork Aldus Persuasion ... 49
3071 M1 Database And Form Letters ... 49
3072 M2 Advanced Database For Works ... 49
3073 M3 Spreadsheets For Works ... 49
3074 M4 Word Processing For Works ... 49
3055 P1 Beginning Aldus PageMaker ... 49
3056 P2 Intermded. Aldus PageMaker ... 49
3057 P3 Tips For Aldus PageMaker ... 49
3058 P4 Advanced Aldus PageMaker ... 49
3383 P5 New Part I Aldus PageMaker ... 49
3384 P6 New Part II Aldus PageMaker ... 49
3783 Q1 Beginning Quark Xpress 3.0 ... 49
3784 Q2 Master Pages Quark Xpress ... 49
3785 Q3 Text Formats Quark Xpress ... 49
3786 Q4 Color & Type Quark Xpress ... 49
3787 Q5 Tips & Techniques Quark Xpress 49
3051 W1 Beginning Level Word ... 49
3052 W2 Intermediate Level Word ... 49
3053 W3 Advanced Level Word ... 49
3054 W4 Additional Features Of Word ... 49
3034 Xl1 Beginning Spreadsheets ... 49
3035 Xl2 Intermediate Spreadsheets ... 49
3036 Xl3 Advanced Spreadsheets ... 49
3037 Xl4 Creating Busin Graphs V2.2 ... 49
3038 Xl5 Building Databases ... 49
3039 Xl6 Beginning Macros ... 49

#20201

Product Listings



The Mac Zone
Established 1986

FIND IT ALL HERE • 1-800-248-0800 • LATEST VERSION SOFTWARE

3040 XI7 Advanced Macros 49
3041 XI8 Macros For Excel 2.2 49
3042 XI9 What's New For Excel 49
Simon And Schuster
0694 Typing Tutor IV 24
The Software Toolworks
3587 Accu-Weather 49
2736 Mavis Beacon Teaches Typing 31
3589 World Atlas 49
Spinnaker
0383 Score Improvement S.A.T. 57
True Basic
1527 Algebra 39
1528 Algebra Workbook 10
1910 Arithmetic 39
1836 Calculus 4.0 Workbook 10
1532 Discrete Mathematics 39
1529 Pre Calculus / Trigonometry 39
1835 Pre Calculus Workbook 10
1531 Probability Theory 39
1530 True Basic Calculus 4.0 39
1533 Truestat 39
Visionary Software
3751 Lifeguard 38
Zondervan Electronic Publishing
0021 MacBible Greek 109
0023 MacBible Hebrew 109
0017 MacBible King James Version 78
0016 MacBible New Int'l Version 78
0018 MacBible New Rev. Standard Ver. 78

ENTERTAINMENT

Access Software
1628 World Class Leader Board 4.0 19
Accolade
2756 Fastbreak 22
2757 Grand Prix Circuit 34
3806 Ishido, Way Of Stones 34
3335 J.Nicklaus Greatest 18 Mac 39
2221 Mean 18 Ultimate Golf 25
3829 Stratego 29
Activision
2528 Cosmic Osmo 42
2235 Manhole 31
Addison-Wesley
2931 Fellowship Of The Ring 10
2932 Shadows Of Mordor 10
2933 The Crack Of Doom 10
Aldus
4600 World Builder 54
Broderbund
0084 Ancient Art Of War 25
1948 Ancient Art Of War At Sea 25
2983 Playmaker Football 28
0145 Robosport 34
2063 Shufflepuck Cafe 23
4721 Sim Ant 29
3800 Sim Earth Planet Simulator 39
2300 Sim City 1.2 B&W 28
2747 Sim City Color Supreme Mac II 46
2749 Where In Europe Is Carmen S? 28
2488 Where In The U.S.A. Is Carmen S? 28
2186 Where In The World Is Carmen S? 28
3513 Where In Time Is Carmen S? 28
Bullseye
0088 Ferrari Grand Prix 35
1978 P-51 Mustang Flight Simulator 39
Bungie Software Products
4106 Operation Desert Storm 27
Casady And Greene
4581 Aqua Blooper 29
1523 Crystal Quest 2.2 28
1945 Crystal Quest 2.2T w/Critter Ed. 44
4582 Game Bundle 59
4580 Glider V4.0 29
3463 Mission Starflight 28
3462 Sky Shadow 28
Centron
2471 Casino Master B & W 40
2470 Casino Master Deluxe Color 44
Delta Tao Software
4116 Spaceward Ho! 37
4083 Strategic Conquest 37
Electronic Arts
1893 Chuck Yeager's Advanced Flight 31
1124 Crossword Magic 32
4454 Harpoon Battle Book 14
4457 Harp Battle Set #4 Rel 1091 24
4456 Harpoon Challenger Pack 59
4453 Marvelous Mac Games 19
4458 Might And Magic I & II 34
0473 PGA Tour Golf 38
4455 Pick N Pile 26
3175 Starflight 39
4346 Starflight II 39
3602 Weaver Baseball 1.5 33
FII Games/Software Heaven
0240 Olds 29
Great Wave
0391 Numbermaze-Color 35
Inline Design
3599 3 In Three 32
3494 Darwin's Dilemma V2.0 31
4252 Mutant Beach 44
4251 Swamp Gas 32
3934 Tesserae 31
Innerprise
4189 Cyberblast 24
Interplay
4134 Battle Chess 29
4135 Checkmate 34
Lucasfilm Games
3598 Indiana Jones-Last Crusade 33
0307 Loom 29
2887 Pipe Dream 16
Micro League Sports
2923 Micro League Baseball II 37
4259 The Manager'S Challenge 28
Microprose
2164 Pirates! For Mac 34
4034 Railroad Tycoon 39
Microsoft Corporation
4293 Flight Simulator 4.0 Mac 39
Mysterium Tremendum
3290 Moriarty's Revenge 31
Origin
2062 Moebius 24
1025 Ogre 18
2980 Space Rogue 30
Postcraft International
3129 Citadel 28
3402 Citadel - Secrets (The Book) 14
3480 Citadel w/Secrets(The Book) 37
4675 King's Quest V 34
4676 Space Quest III 34
4677 Space Quest IV 34
4678 Rise of the Dragon 34
4679 Heart of China 34
4680 Thexder I 19
4681 Leisure Suit Larry 5 34
4682 Hoyle I 19
4683 Hoyle II 19
Shodan
2527 Leprechaun 27
Silicon Beach
1376 Beyond Dark Castle 32
0689 Dark Castle 35
Softstream International Inc.
0067 22nd Street Whist Tutor 31
4601 Classic Trilogy-Gift Ed. 59
4333 Cribbage Tutor 32
4602 Family Card Games 49
0255 Mac Rummy 32
0261 Solitaire DA 23
Spectrum Holobyte
3809 Faces ..Tris III 29
1808 Falcon 2.2 34
1622 Solitaire Royale Mac 24
1980 Tetris (B&W and Color) 23
3808 Vette! Mac 32
3110 Welltris (B&W and Color) 21
Spinnaker
1916 Sargon IV 27
Spph Software
4229 Operation Tsunami 24
Strategic Simulations Inc.
4304 Ad&D Secret of Silver Blades 39
2727 Ad&D: Pool Of Radiance 32
3849 Curse Of The Azure Bonds Ad&D 38
Strategic Studies Group
3008 Halls Of Montezuma 28
2737 Panzer Battles 28
The Software Toolworks
4490 Chessmaster 3000 32
2728 Cribbage King/Gin King 25
2288 Hunt For Red October 20
2735 Life And Death 31
Three Sixty
3597 Armor Alley 33
3600 Harpoon 39
0304 Harpoon Battle Set #2 22
0306 Harpoon Battle Set #3 22
0308 Harpoon Scenario Editor 28
2888 Sands Of Fire 32
Toyogo
4494 Nemesis Deluxe Toolkit 5.0 84
4493 Nemesis Go Jr 5.0 20
4495 Nemesis Go Master 5.0 41
2893 Nemesis Joseki Genius 26
0191 Nemesis Jr. 20
4492 Nemesis Scribbler 5.0 35
Virgin Mastertronic
1024 Scrabble 23
Visionary Software
3112 Synchronicity 38
XOR
1813 Lunar Rescue 32
3625 Mac Ski 37
0650 Macgolf 33
1984 Macgolf Classic 49
0895 NFL Challenge 53
2069 Road Racer 37
2909 Taskmaker 26

FLOPPY DISK DRIVES

Applied Engineering
3671 Ae 3.5 " 800K Disk Drive 195
3672 Ae 3.5 " Hd 1.44Mb Disk Dr 228
PLI
3687 PLI Superfloppy 1.4 (1.4/800) 448
2298 PLI Turbofloppy 1.4 (1.4 Only) 308

FONT UTILITIES

Adobe Systems
2870 Adobe Plus Pac For Type Mgr. 108
3497 Adobe Type Manager 2.0 58
3280 Adobe Type Reunion 39
Altsys
4195 Altsys Eps Exchange 94
Ares Software Corporation
0078 Fontmonger 62
Image Club
3320 Evolution 49

FONTS

Adobe Systems Inc.
4329 Adobe Font Folio 1-150 14790
2329 Font 4 Itc Avant Garde Gothic 119
3959 Font '81 Adobe Caslon Expert 177
3961 Font '83 Neue Helvetica Ext. 2 177
3966 Font '88 Helvetica Neue Cond 1 177
3234 Adobe Collectors Ed #1 S&B 79
3235 Adobe Collectors Ed #2 P&T 139
3092 Adobe Type Align 61
3156 Font 118 Bodoni II 119
4330 Adobe Font Folio Cd Rom 1-150 13915
3210 Adobe Type Set 1 64
3211 Adobe Type Set 2 64
3491 Adobe Type Set 3 124
2326 Font 1 Palatino 119
2335 Font 10 ITC American Typewr 119
2671 Font 100 Adobe Garamond 177
2672 Font 101 Adobe Gar Xprt Colle 119
2673 Font 102 Candida 93
2674 Font 103 Franklin Gothic No. 2 93
2675 Font 104 Utopia 177
2676 Font 105 Utopia Xprt Collect 119
2619 Font 106 ITC Berkely Oldstyle 239
3145 Font 107 Antique Olive II 119
3146 Font 108 Parisan/Umbra 93
3147 Font 109 Mistral/Reporter 93
2336 Font 11 Itc Benguiat&Fritz Qua 119
3148 Font 110 Nuptial/Cascade/Medi 93
3149 Font 111 Bauer Bodoni II 119
3150 Font 112 Meridiens 177
3151 Font 113 Copperplate Gothic 239
3152 Font 114 ITC Novarese 177
3153 Font 115 Kunstler Script 93
3154 Font 116 Industria 119
3155 Font 117 ITC Souvenier II 119
3157 Font 119 Russell Square 93
2337 Font 12 Glypha 119
3158 Font 120 Charlemange/Trajan 119
3159 Font 121 Lithos 119
3160 Font 122 Cttnwood/Pndrosa/Ircn 119
0220 Font 122 Wood Type 1 119
3437 Font 123 Tekton 119
3438 Font 124 ITC Avante Garde Goth 119
3439 Font 125 Stemple Schnieder 243
3440 Font 126 Trade Gothic 239
3441 Font 127 Trade Gothic Cond 119
3442 Font 128 Raleigh 119
3443 Font 129 Minister 239
2338 Font 13 Helv Lt & Helv Black 119
3444 Font 130 Eurostyle Condensed 119
3445 Font 131 ITC Wideman 239
3446 Font 132 ITC Quorum 119
3447 Font 133 Caxton 177
3448 Font 134 Syntax 119
3449 Font 135 Doric Maximus 93
3450 Font 136 Shelley Allegro Scr 93
3451 Font 137 Neuzeit 93
3385 Font 138 Versailles 239
3386 Font 139 ITC Garamond Cond 239
2339 Font 14 Helvetica Cond 239
3387 Font 140 ITC Cheltenham 2 119
3388 Font 141 ITC Century 239
3389 Font 142 ITC Century Condensed 239
3390 Font 143 Minion 239
3391 Font 144 Minion Xprt Coll. 177
3706 Font 145 Times New Roman 119
3707 Font 146 ITC Bookman 2 119
3708 Font 147 Snell Roundhand 93
3709 Font 148 Simoncini Garamond 93
3710 Font 149 German Display 2 119
2340 Font 15 Trump Medieval 119
3711 Font 150 ITC Garamond 2 119
3712 Font 151 Rockwell 177
3713 Font 152 Gill Sans 177
3703 Font 153 Serpentine 177
3714 Font 154 Lucida Math 93
3715 Font 155 European Bord. Pi 119
3716 Font 156 Bundesbah Pi 93
3717 Font 157 ITC Caslon 224 239
3718 Font 158 Mathematical Pi 177
3719 Font 159 Leawood 239
2341 Font 16 Melior 119
3720 Font 160 Wood Type 2 119
3721 Font 161 Bembo 119
3864 Font 162 Gill Sans 2 119
3865 Font 163 Rockwell 2 93
3866 Font 164 Glypha 177
3867 Font 165 ITC Zapf Chancery Fam 177
3868 Font 166 Usherwood 239
3869 Font 168 Univers Extended 239
3870 Font 169 Olympian 119
2342 Font 17 ITC Galliard 119
3871 Font 170 ITC Cushing 239
3872 Font 171 Cheq 30
3873 Font 172 Sasson Primary 60
3874 Font 173 ITC Fenice 239
3952 Font 174 ITC Cheltenham Cond 239
3953 Font 175 Helvetica Rounded 177
3954 Font 176 Din Schriften 119
3955 Font 177 Spartan Classified 93
3956 Font 178 Benguiat Gothic 239
3957 Font 179 Times Semibold 93
2343 Font 18 ITC New Baskerville 119
3958 Font 180 Adobe Caslon 177
3960 Font 182 Neue Helvetica Ext. 1 119
3962 Font 184 Neue Helvetica Ext. 3 177
3963 Font 185 Shannon 119
3964 Font 186 Bembo 2 119
3965 Font 187 Garth Graphic 239
3968 Font 189 Helvetica Neue Cond 2 177
2344 Font 19 ITC Korinna 119
3969 Font 190 Helvetica Neue Cond 3 177
0342 Font 193 Garamond 3 Old Style 119
0239 Font 195 Type Before Gutenberg 193
0209 Font 197 Sabon Small Caps & O 119
0556 Font 199 Bauer Bodoni Small Caps 119
2327 Font 2 ITC Bookman 119
2345 Font 20 Goudy Old Style 119
2346 Font 21 Sonata 62
2347 Font 22 Century Old Style 93
2348 Font 23 ITC Franklin Gothic 177
2349 Font 24 ITC Cheltenham 119
2350 Font 25 Park Avenue 62
2351 Font 26 Bodoni 119
2352 Font 27 Letter Gothic 119
2353 Font 28 Prestige Elite 119
2354 Font 29 Orator 93
2328 Font 3 Zapf Dingbts & Chancery 93
2355 Font 30 News Gothic 119
2356 Font 31 ITC Tiffany 177
2357 Font 32 Cooper Black 93
2358 Font 33 Stencil, Hobo & Brooms 93
2359 Font 34 Aachen & Revue & U Rom 119
2360 Font 35 Carta 60
2361 Font 36 Lucinda 119
2362 Font 37 Univers 239
2363 Font 38 Universe Condensed 177
2364 Font 39 Futura Light 177
2365 Font 40 Stone Serif 177
2366 Font 41 Stone Sans Serif 177
2367 Font 42 Stone Informal 177
2368 Font 43 Corona 93
2369 Font 44 Eurostyle 93
2370 Font 45 Excelsior 93
2371 Font 46 Futura 177
2372 Font 47 Futura Condensed 239
2373 Font 48 Lucinda Sans 119
2374 Font 49 Memphis 239
2330 Font 5 New Century Schoolbook 119
2375 Font 50 Helvetica Compressed 93
2376 Font 51 Italia 93
2377 Font 52 Belwe 119
2378 Font 53 Caslon 3, Caslon 540 119
2379 Font 54 Goudy Xtra Bld & Hvyfc 93
2380 Font 55 Janson Text 55 & 75 119
2381 Font 56 ITC Eras 177
2382 Font 57 ITC Kabel 119
2383 Font 58 Ocr-A, Ocr-B, Micr 93
2384 Font 59 Helvetica 1 119
2331 Font 6 Optima 119
2385 Font 60 Helvetica 2 177
2386 Font 61 Helvetica 3 177
2387 Font 62 Times Ten 119
2388 Font 63 Kaufman 93
2389 Font 64 Clarendon 93
2390 Font 65 Pengot 93
2391 Font 66 New Caledonia 239
2392 Font 67 ITC Clearface 239
2393 Font 68 Americana 119
2394 Font 69 ITC Serif Gothic 177
2332 Font 7 ITC Souvenir 119
2395 Font 70 Century Expanded 93
2396 Font 71 Serifa 177
2397 Font 72 Caslon Open Face 60
2398 Font 73 Frutiger 239
2399 Font 74 Linotype Centenial 239
2400 Font 75 Semple Garamond 119
2401 Font 76 Weiss 119
2402 Font 77 Garamond 3 119
2403 Font 78 U News,Comm. Pi/Un 93
2404 Font 79 Avenir 1 177
2333 Font 8 ITC Lubalin Graph 119
2405 Font 80 Avenir 2 177
2517 Font 81 Walbaum 119
2407 Font 82 Antique Olive 119
2568 Font 83 Life 93
2570 Font 85 Gothic 13 & Tempo 93
2571 Font 86 Cochin 119
2406 Font 87 Itc Bauhaus 119
2572 Font 88 Sabon 119
2573 Font 89 Hirosige 239
2334 Font 9 ITC Garamond 119
2574 Font 90 A Bocklin, F Franktur 119
2575 Font 91 Dom Casual 93
2576 Font 92 Post Antiqua 93
2577 Font 93 Folio 119
2578 Font 94 Linoscript & Linotext 93
2579 Font 95 Vag Rounded 119
2667 Font 96 Akzidenz Grotesk 119
2668 Font 97 Impressum 93
2669 Font 98 Bauer Bodoni 119
2670 Font 99 New Aster 239
4027 TOC Atm Plus Pack 108
4025 TOC Font Family Group 255
4016 TOC Font Package 1 68
4017 TOC Font Package 2 93
4018 TOC Font Package 3 119
4019 TOC Font Package 4 177
4020 TOC Font Package 5 239
4026 TOC Remaining 6 Fonts 193
4015 TOC Single Type Face 35
4021 TOC Specials 49
4022 TOC Typeset 1 Or 2 64
4023 TOC Typeset 3 115
3950 Type On Call CD-Rom 58
4212 Type Sets For Bus-Invit&Awar 94
4211 Type Sets For Bus-Sprdsh&Grp 94
4214 Type Sets For Business Ltrs 94
4213 Type Sets For Bus-Overhd&Sld 94
Agfa
4338 1(4-5 Wgt Vol)1(8+Wgt Vol)1 Sd 349
4339 1(4-5Wgt Vol) 1(6-7Wgt Vol)1Sd 299
4402 1(6-7 Wgt Vol)1(8+ Wgt Vol)1Sd 399
4337 2(4-5 Wgt Vol) 1 Studio Vol 238
4401 2(6-7 Wgt Vol) 1 Studio Vol 349
4403 2(8+ Wgt Vol) 1 Studio Vol 449
0326 Agfa Type On Cd Rom 61
0381 Agfa Type W/ TXM-3301 CD Drive 689
4352 Font Access Codes (12 Fonts) 249
Bitstream Inc.
0396 Font Pack 1 58
0397 Font Pack 2 58
4010 Font Pack 3 98
4011 Font Pack 4 98
Broderbund
4347 Typestyler 2.0 With Atm 127
Casady And Greene
0315 Fluent Laser Fonts Library 4.0 99
Design Science, Incorporated
3559 Design Science Math Type 99
3560 Design Science Para Font 49
Dream Maker Software
3995 Mac Gallery - MacPaint Format 26
3996 Mac Gallery Hypercard Format 26
Dublclick Software
1342 World Class Fonts Vol. 1&2 56
1882 World Class Fonts Vol. 3&4 56
1883 World Class Fonts Vol. 5&6 56
2319 World Class Fonts Vol. 7&8 56
Letraset Graphic Design
3218 Fontstudio 368
NEC Home Electronics
0080 Type Gallery Ps #Cdpsmoo2 245
Tactic Software
2859 Artfonts Pak 49

FOREIGN LANGUAGE

Hyperglot Software Co.
4234 French Survival Manual 39
4236 German Survival Manual 39
3742 French Pronunciation 34
3744 French Tense Tutor 41
3743 French Verb Tutor 38
3741 French Word Torture 34
3746 German Pronunciation 34
3747 German Verb Tutor 38
3745 German Word Torture 34
3733 Intro To Russian 28
3748 Italian Word Torture 34
3750 Japanese Easy Kana 128
3749 Japanese Kanjimaster 98
3892 Learn French CD Rom 59
3893 Learn Spanish CD Rom 59
3735 Russian Noun Tutor 58
3734 Russian Verbal Aspec 41
373 Russian Word Torture 34
3740 Spanish Pronunciation 34
3739 Spanish Tense Tutor 41
3738 Spanish Verb Tutor 38
3737 Spanish Word Torture 34
4231 Learn To Speak English from CD 59
4232 Learn To Speak Spanish from CD 59
4235 Spanish Survival Manual 39
Penton Overseas
2837 Vocabulearn French 1 35
2926 Vocabulearn French 2 35
2836 Vocabulearn German 1 35
2925 Vocabulearn German 2 35
2839 Vocabulearn Italian 1 35
2928 Vocabulearn Italian 2 35
2840 Vocabulearn Japanese 1 35
2929 Vocabulearn Japanese 2 35
2838 Vocabulearn Spanish 1 35
2927 Vocabulearn Spanish 2 35

GIFT IDEAS

4556 HeadCrashers Pillowcases (Two) 12
4557 Spreadsheets-Queen 32
4558 Spreadsheets-Twin 26

HARD DRIVE UTILITIES & ANTI-VIRUS

Casa Blanca Works, Inc
4472 Unv. System 7 Formatter 44
Fifth Generation
4413 Disklock 2.1 117
FWB, Inc
0555 Hard Disk Toolkit 139
Microcom
2077 Virex 3.1 For Mac 56
Microseeds Publishing
2191 Init Picker 2.0 35
Now Software, Inc.
4191 Now Utilities 3.0 64
Symantec
4078 Norton Utilities V.1.1 83
0116 SAM 3.0 65
4341 SAM 3.0 - Norton Bundle 119

HARD DRIVES

Core International
4210 Core Hc Mac 1000 Hd Ext. 3995
4208 Core Hc Mac 330 Hd Ext. 2195
4209 Core Hc Mac 650 Hd Ext. 2899
4166 Core Optima 120 Ext. Hd 749
4164 Core Optima 200 1249
4165 Core Optima 80 Ext. Hd 599
FWB, Inc
0506 FWB 100 Mb PocketHammer 799
0505 FWB 50 Mb PocketHammer 599
Quantum Mechanisms
3683 Datacel 105 Mb Q Ext Hd 549
3685 Datacel 170 Mb Q Ext Hd 899
0163 Datacel 210 Mb Int Hd 949
4533 Datacel 210 Q Ext 999
0405 Datacel 52Mb Q Lps Ext Hd 399
4693 Datacel 52Mb Q Lps Int IIci/Cx 329
4033 Datacel 52Mb Q Lps Int SE/II 329
0019 Datacel Int 105 Q IIci/Cx 499
4225 Datacel Int 105Q SE/II 499
Generation Systems
4561 Gen. Sys. 30 Mb Hard Drive 319
4589 Gen Sys. 45 Mb Removable 589
4691 Gen Sys. 88 Mb Removable 799
Mass Microsystems
0164 Datapak Mo 512 Meg Cartr 208
PLI
0446 PLI Q 200 Mb Ext HD 1199
0447 PLI Seagate CDC 415Mb HDExt 2099
2292 PLI 30 Mb Seagate Ext HD 349
4450 PLI 52Mb External HD 499
4447 PLI 600Mb Internal 1995
3690 PLI Dat Backup Sys w/Retro 2299
0182 PLI Infinity 88 Turbo Hd 849
0443 PLI PI 1.2Fh Gb Int II/X/Fx 3999
0442 PLI PI 1.3Fh Gb External 4149
0450 PLI PI 645 Mb Ext HD 2599
0444 PLI PI 645Fh Int II/IIx/IIfx 2299
0445 PLI Q 105 Mb Ext. HD 698
3270 PLI Turbo 300 Mb Ext HD 1995
3281 PLI Turbo 600 Mb Ext HD 2099

HYPERWARE

Aldus Corp.
3492 Super Card 1.5 198
Claris
4302 Hypercard 2.1 Dev. Kit 139
Individual Software
1970 101 Scripts & Buttons Hyper 34
Medialac Tech
3776 Script Expert 2.0 44
Spinnaker
2799 Spinnaker Plus 2.0 275
Symmetry
0434 Hyper DA II 39

ILLUSTRATION

Adobe Systems
3558 Adobe Illustrator 3.0 w/ATM 69
3971 Streamline 2.0 118
Aldus Corp.
3947 Aldus FreeHand 3.0 387
4121 Aldus Gallery Effects 134
1379 Super 3D 2.5 (Color) 338
Broderbund
3132 Typestyler 1.5 114
Computer Associates
4414 Cricket Draw 1.11 209
Deneba
0803 Canvas 3.0 297
Dynaware Usa, Inc
3761 Dyna Perspective 2.0 599
Letraset Graphic Design
3216 Colorstudio 598
3217 Designstudio 488
Pantone Matching Grid
3435 Pantone Color Imaging Guide 44
4056 Pantone Color System Guide 44
Paracomp
4498 Model Shop II 1.0 549
2650 Swivel 3D 1.2 294
3619 Swivel 3D Professional 429
3852 Swivel Art 3D By Paracomp 81
Postcraft International
4049 Effects Specialist 94
4054 Layouts - Stationary Pack B 34
4050 Layouts -Stationary Pack A 34
Raydream
0031 Raydream Designer 630
Strata
4088 Stratavision 3D 2.0 515
Supermac Technology
2665 Pixelpaint Pro 2.0 458

IMAGE PROCESSING

Adobe Systems
4042 Photoshop 2.0 549
Aldus Corp.
3881 Digital Darkroom 2.0 258
Letraset Graphic Design
1925 Imagestudio 138
2143 Letrastudio 274
Microfrontier
3401 Enhance 238
Preferred Publishers
3553 Exposure Pro 68
Raydream
4150 Jag V1.0 (Jaggies Are Gone) 69

INTEGRATED

Beagle Bros. Inc.
4327 Beagleworks 184
4583 Beagleworks Comp.Upgr 99

Our Latest Macintosh

The Mac Zone — Established 1986

Now Open 24 Hours

30 TO 60 DAY MONEY-BACK GUARANTEE ON MOST PRODUCTS • 1-800-248-0800 • CALL US

Claris
4466 Claris Works ... 199
4651 Claris Works Comp.Upgr ... 99
Mecc
0075 Exploring Microsoft Works ... 17
Microsoft Corporation
4216 License Pak For Works Mac ... 139
2678 Microsoft Office V1.5 ... 519
0567 Microsoft Works 2.0C ... 183
Rag Time
4055 Ragtime 3.1 ... 369
Symantec
4342 Great Works - Norton Bundle ... 199
4040 Great Works V 1.0 Comp. Ugrade ... 98
T Maker
0042 T/Maker Smart Bundle ... 149

JOYSTICKS

Advanced Gravis
2740 Mousestick Joystick 512 & Plus ... 58
2741 Mousestick ADB ... 58
Kraft
1990 KM30 Joystick Mac ... 44
0941 Quickstick Mac 3 Button ... 35

KEYBOARDS

Datadesk
1584 Mac 101E Keyboard -New ... 128
4318 Mac 101E Keyboard w/Quickkeys ... 148
3326 Switchboard ... 153
Keytronics
2813 Mac Pro Keyboard 105 Plus ... 128
0517 Trak Pro Keyboard ... 209
Silicon Sports
4090 Wrist Pad Blue ... 13
4092 Wrist Pad Grey ... 13
4091 Wrist Pad Mauve ... 13
4079 Wristpad Black ... 13
4089 Wristpad Red ... 13

LABELS AND MAILING LIST SOFTWARE

Avery Labels
3552 Avery Mac Label Pro - Software ... 47
3031 Dot Matrix Color Disk Label 80 ... 6
3023 Labels Dot Matrix (250) #4241 ... 13
3025 Laser Disk Labels (630) ... 28
3024 Laser Transparencies (Qty 50) ... 22
Kiwi Software
2917 Kiwienvelopes! ... 32
Satori
3013 Bulk Mailer 3.2.3 ... 74
1135 Bulk Mailer Plus 3.2.3 ... 195
Synex
3142 Macenvelope 5.1 ... 56
2805 Macenvelope Plus 2.0 ... 158
Vertical Solutions
3371 Fast Envelope 1.0 ... 42
3370 Fast Label 2.0 ... 42
Williams And Macias
2420 Sticky Business ... 50
0401 Sticky Business Plus ... 86

MAC TO HOST CONNECTIVITY

Argosy Software, Inc.
4241 Run PC Network ... 278
4240 Run PC Remote ... 139
3894 Software Bridge Macintosh ... 98
Cayman Systems
0533 Xgator (Single User) ... 349
Dataviz
4438 Maclink + Pc 5.1 W/Cable ... 128
3111 Maclink Translators V5.1 ... 108
Dayna Communications Inc
3891 Dos Mounter 2.0 ... 54
0320 DaynaFILE II 1.44 Mb 3.5" ... 435
2609 DaynaFILE 360K 5.25" Drive ... 445
2616 DaynaFILE Dual 1.2Mg/1.44Mg Dr ... 799
2613 DaynaFILE Dual 360K/1.2Mg Dr ... 738
2615 DaynaFILE Dual 360K/1.44Mg Dr ... 649
0319 DaynaFILE II 1.2Mb ... 448
0318 DaynaFILE II 360K 5.25 ... 435
Daystar Digital
2214 LT 200 PC LocalTalk Board ... 188
2215 LT 200 MC LocalTalk Board ... 295
Fairfield Software
3992 Clear Access ... 350
Insigna Solutions
3664 Access PC 1.1 Mac ... 61
4541 Soft PC Universal V2.5 ... 241
3982 Soft PC Classic Mac ... 125
3282 Soft PC EGA/AT (Need 2506) ... 123
Orange Micro
1485 Mac 286 V3.0 (Single Board) ... 1078
3032 Mac 86 Co-Processor Card SE ... 265
3562 Orange 386 16Mhz ... 1678
0059 Orange Micro 386 20Mhz ... 1838
0230 Orange Peripherals Kit ... 149
Pacer Software
4473 PacerForum V1.0 ... 349
4163 PacerTerm ... 159
PLI
4449 PLI DOS Floppy 5.25" ... 499
Traveling Software
3975 Laplink Mac III 3.2 ... 92
Walker, Richer, Quinn
0262 Reflection 3 + ... 360

MATHEMATICS AND STATISTICS

Abacus Concepts
0070 MacSpin ... 168
0032 Statview II ... 278
0066 Statview SE+Graphics ... 198
0071 Statview Student ... 63
4317 Superanova ... 308
Prescience
1382 Expressionist 2.07 ... 78
3882 Theorist 1.1 ... 250
Strategic Mapping Inc.
2498 Exstatix 1.2 ... 218
Synergy Software
2006 Kaleidagraph 2.0 ... 149
Tree Star, Inc.
3373 Flexigraphs 1.1 ... 120
1357 Flexitrace ... 145
3987 Flexitrace/Flexigraph Bundle ... 225
Wolfram Research, Inc.
4107 Mathematica Enhanced V2.0 ... 789
4108 Mathematica V.2.0 Standard ... 519

MEMORY, COPROCESSORS & SIMMS

Applied Engineering
4120 Fast Math LC ... 139
3675 Mac RAM Portable 1Mb Sram ... 349
3674 Mac RAM Portable W/1 Mb ... 395
3824 Mac RAM Classic 1Mb Upgr. Ae ... 118
Dove Computer Corp
0963 MacSnap 524Xe (512Ke To 1Mb) ... 198
0964 MacSnap 524Xs 512Ke-1Mb w/SCSI 248
3817 MacSnap 596Xe (512Ke T0 4Mb) ... 390
Ergotron
1277 Mouse Cleaner 360 ... 9

SIMMS

1963 2 One Mb SIMMs (100 Ns) Micron ... 84
3936 IIsi SIMM Module 2Mb (Qty 4) ... 389
0014 LC SIMMs (Two 2Mb) ... 194
0008 Mac Port 2Mb Sram ... 540
0009 Mac Port 3Mb Sram ... 639
0007 Mac Port Sram 1Mb ... 204
3586 SIMMs 1Mb Ntx ... 49
3579 SIMMs 4X1Mb Fx 80Ns ... 169
3585 SIMMs 4X4Mb Fx ... 759
3976 SIMMs Lc (Two 4Mb Simms) ... 349
3428 2 One Mb SIMMs (80Ns) Samsung ... 94
4609 IIci Cache Card ... 189
4608 LC Video Ram ... 89
3584 SIMMs 4X4Mb '020 ... 799
3583 SIMMs 4X4Mb '030 ... 639

MICE AND TRACKBALLS

Abaton Technology Corp
1507 Pro Point ADB (SE & II) ... 79
Advanced Gravis
0055 SuperMouse ... 83
Altra
2935 Felix ... 116
Appoint
4117 Thumbelina Mouse Pen ... 69
Costar
0523 Stingray - Black ... 88
0524 Stingray - Platinum ... 88
Curtis
0454 Curtis MVP Mouse ADB V1.0 ... 88
Datadesk
3780 Switchboard Switch Track Ball ... 97
Everex Systems
4094 Everex Silhouette Trackball ... 81
Kensington
4421 Custom Track Ball-Purple 62374 ... 10
4420 Custom Track Ball-Blk 62371 ... 10
4422 Custom Track Ball-Blue 62373 ... 10
4423 Custom Track Ball-Red 62372 ... 10
1292 Turbo Mouse (512K & Plus) ... 107
1411 Turbo Mouse ADB ... 107
Logitech
4258 Logitech Mouseman Mac ... 76
0550 Logitech Trackman For Mac ... 84
Micro Touch Systems
3412 Unmouse ... 159
Microspeed Inc.
3306 Mactrac Trackball 512/Plus ... 60
3305 Mactrac Trackball ADB ... 74
4417 Micro Trac Mini Trackball ... 59
Mouse Systems Corp.
0208 A3 Mouse 3 Button A/Ux Mouse ... 89
3629 Little Mouse A+ (512/Plus) ... 73
3630 Little Mouse For ADB ... 73
2308 Little Mouse For ADB(Fx Only) ... 74
0252 Mouse Systems Trackball/ADB ... 67

MODEMS AND FAX

Abaton Technology Corp
2987 Abaton 24/96 Faxmodem 110V ... 338
3186 Abaton 24/96 Faxmodem 220V ... 338
2154 Abaton Interfax 12/48 Faxmodem ... 264
Applied Engineering
3980 Mac LC 24/96 Sendfax Modem ... 245
3981 Mac LC 24/96 Sendfax V 42Bis ... 265
3670 Mac Portable W/Mnp 5 & Sendfax ... 205
0340 Modem 2400 External ... 174
0341 Modem 2400 Internal ... 208
3668 Modem 2400 Mnp 5 Internal ... 195
3667 Modem 2400 Mnp 5 Send Fax Ext ... 235
3669 Modem 2400 Mnp 5 Send Fax Int ... 269
3666 Modem 2400 Mnp 5 External ... 195
Best Data Products
4243 Smart One 2400Xmac Modem ... 99
Computer Peripherals
4272 Viva 9642E (9600 Baud Modem) ... 419
4271 Viva Ext.Modem24/48Sendfax ... 109
Cypress Research
4585 Network Fax ProModem ... 799
Datadesk
1462 Hyper Dialer ... 34
Dove Computer Corp
3318 Dove Fax 24/96 ... 294
3514 Dove Fax Plus ... 358
Everex Systems
0514 Emac 24/96 Fax & Data Modem ... 329
2048 Emac Md2400 Modem w/ Mnp Lvl5 175
Global Village Communications
3883 Teleport Adb 2400 Mnp 5 Modem ... 128
0395 Teleport Fax 24/96 ... 184
Hayes
0451 Hayes Personal Modem 2400+ ... 148
0452 Hayes V-Ultra 9600,Connect.Cbl ... 668
0386 Smartcom II 3.2 ... 83
Logicode
4644 Xeba 9600 Send/Rec V.42 Bis Black 199
4674 Xeba 9600 Send/Rec V.42 Bis Plat. 199
Mac Tech Distributors
0028 Lexus 2400Bps Mini Modem ... 89
Microcom
3615 Mac Modem V.32 Mnp 5 ... 654
Practical Peripherals
4035 Practical Modem 9600 Sa-Mac ... 569
Preferred Publishers
3557 Double Talk Twin Pack ... 84
Prometheus
4416 Prometheus 2400 Mini Plus ... 123
4596 Promodem 2496 S/R Mini Fax ... 269
3311 Promodem Mnp 5 2400 II Intrl ... 245
3312 Promodem 2400 Mini-M ... 118
3314 Promodem 2400 Se Plus ... 245
3608 Promodem 9600M Plus ... 599
3313 Promodem Travel Modem ... 122
0062 Promodem Ultima ... 689
Relisys
0256 Relisys Telax W/Autofax ... 869
Shiva
4491 Shiva Netmodem/E 10 Baset/Thin 1749
3251 Shiva Netmodem V.32 9600 ... 1149
1615 Shiva Netmodem V2400 ... 338
4129 Shiva Netmodem/E 10 Base T ... 1749
Solutions
4404 Faxgate + 3.0 W/5 Pak Mailmake ... 249
Supra Corporation
4028 Supra 2400 Plus Macpac ... 239
4351 Supra Fax Modem Plus ... 199
2003 Supra Modem 2400 Baud ... 89
3368 Supra Modem 2400 Macpac ... 138
0065 Supra Modem 2400 Plus ... 148
Telebil
2554 T-2500 V.42 Rel 6.01 19000 Bps ... 999
U.S. Robotics
3665 Courier Hst Dual Std V.42 ... 995
1057 Courier Hst Std V.42 ... 675
4610 World Port 2400 MNP5 ... 249
4611 World Port 9600 v.32 ... 549
4626 World Port Fax Data Modem ... 369

MONITOR FILTERS

Kensington
3356 Antiglare Filter 13" Apple RGB ... 62
0449 Polarizing Filter (Beige) ... 32

MONITORS AND VIDEO CARDS

Digital Vision
3277 Computer Eyes - Color ... 309
3278 Computereyes - B/W ... 194
E-Machines
4485 TX/Si & T19/Si Video Card ... 920
4105 Color Page E16 16" Monitor ... 1148
4479 Color Page T16 16" Monitor ... 1775
4480 Double:color 8Bit ... 350
4151 Double:color LC/8Bit ... 399
0184 E Machines T19 19" Monitor ... 2975
4478 E Machines TX 16" Monitor ... 1775
4481 Futura EX/24Bit ... 565
4152 Futura MX/24Bit ... 1400
4188 Futura SX 24Bit For 16" ... 1079
4482 Futura SX/24Bit ... 1059
4483 Futura SX/8Bit ... 699
3919 T16 8-Bit Color Sys Mac II ... 1995
3920 T16/Xl24 Color Sys For Mac II ... 2999
0205 T19 24-Bit Color Sys Mac II ... 3999
4487 TX/24 & T19/24 Video Card ... 1775
4484 TX/8 & T19/8 Video Card ... 920
4486 TX/SE30 & T19/SE30 Vid.Card ... 920
2414 TX16 24-Bit Color Sys Mac II ... 3695
3922 TX16 8-Bit Color Sys Mac II ... 2699
3921 TX16 8-Bit Color Sys Mac IIsi ... 2699
2144 TX16 8-Bit Color Sys Se/30 ... 2730
Generation Systems
4145 Full Page Display SE/30 ... 599
4588 14" Color Monitor ... 449
0552 24 Bit Color Display & Card ... 3299
0551 20" 8 Bit Color ... 2699
4148 Full Page Display Classic ... 599
4146 Full Page Display II ... 599
4149 Full Page Display SE ... 599
4147 Full Page Display LC ... 599
Mass Microsystems
0180 QuickImage 24 Vid.Frame Grabber 249
Micron
3094 Xceed 8 Bit SE/30 "3"/14" ... 268
Radius
4437 Directcolor/Gx Interface ... 575
4516 Directcolor 24/Intrface 72Dpi ... 2599
4531 Directcolor Memory Exp. Kit ... 575
4187 Directcolor/24 Interface ... 2460
4515 Directcolor/24 Interface ... 2459
4513 Directcolor/8 Interface ... 1299
4514 Directcolor/8 Interface 72Dpi ... 1375
4517 Directcolor/Gx Interface Ntsc ... 575
4518 Directcolor/Gx Interface Pal ... 575
4502 Full Pg Display-Classic Interface ... 215
4503 Full Pg Display-SE Interface ... 215
4501 Full Pg Display 15" Mono ... 650
4530 Pivot-LC Upgrade Kit ... 290
4488 Precision 8 Color Card 0310 ... 575
4521 Precision Color Calibrator ... 515
4520 Quickcad Graphics Engine ... 1084
4519 Quickcolor Graphics Engine ... 295
4527 Radius 16Mhz Xcel For SE ... 360
4526 Radius 16Mhz Xcel For SE W/Fpu ... 499
4504 Radius 19" 2 Pg. Display Mono ... 999
4899 Radius 20" Color Display ... 2995
4505 Radius 21" 2 Page Display Mono ... 1299
4186 Radius 21" Color Monitor ... 3250
4525 Radius 25Mhz Xcel For SE W/Fpu ... 940
4528 Radius Full Pg Display Tilt/Swvl ... 30
4529 Radius Gray Shades Kit ... 109
4508 Radius GS/C Interface M ... 720
4524 Radius Impress It Software ... 135
4206 Radius Pivot Display Color ... 1450
4205 Radius Pivot Display Mono ... 794
4200 Radius Pivot II Interface C ... 565
4201 Radius Pivot IIsi Interface C ... 565
4199 Radius Pivot LC Interface C ... 565
4204 Radius Pivot LC Interface M ... 275
4202 Radius Pivot MacII Interface M ... 275
4198 Radius Pivot SE/30 Interface C ... 565
4203 Radius Pivot SE/30 Interface M ... 275
4507 Radius 2-Pg Display II Interf.NubusM430
4506 Radius 2-Pg Display IIsi Interf. M ... 430
4510 Radius 2-Pg Display SE Interf. M ... 430
4509 Radius 2-Pg Dsply SE/30Interf.M ... 430
4511 Radius 2-Pg Dsply/Pc-Isa Interf.M 575
4512 Radius 2-Pg Dsply/Pc-Mca Interf.M649
4522 Radius TV System NTSC ... 1595
4523 Radius TV System Pal ... 1595
RasterOps
4620 Colorcad Trimitron ... 3299
3379 Colorboard 208 24Bit Upgr ... 280
2627 Colorboard 264/30 24Bit 351 ... 638
3427 Colorboard 364 (Video) ... 699
0503 Imagepak Still Compression Bd ... 369
3483 RasterOps TV Tuner ... 375
3482 RasterOps Video Expander ... 499
4618 19" Color Trinitron ... 3199
4619 19" Color Trinitron ... 3199
4624 19" Hitachi Color ... 1999
4223 19" Mono/GS Monitor ... 999
4625 19" Mono/GS Monitor ... 999
4567 21" Color Monitor ... 3299
0035 24S ... 449
0064 24Si ... 699
0005 24STV 2536 ... 1248
4118 24Xli (2544) ... 3299
0521 24XITV (#2548) ... 2999
4910 8Xi Video Board ... 749
4617 8Xli Vram Expan Kit ... 1499
4623 Accel 16Mb Dram Exp ... 3399
4115 Clearvue/GSxl Card ... 749
4621 Correctcolor Calibrator ... 2199
4637 Expresso Slide Scann ... 699
4622 Tilt & Swivel Base ... 229
Sigma Designs
3854 L View Multi-Mode For IIxx ... 1299
3860 Colormax 24 Monitor ... 4350
0219 Multi-Mode LC ... 1475
3853 Multi-Mode SE-30/Si ... 1475
4132 Pageview 15" 220V Monitor ... 750
4131 Pageview 15" Monitor ... 515
3855 Pageview Gs IIci&Si Monitor ... 649
4130 Pageview M2/Xx Card ... 225
3856 Pageview SE Monitor ... 850
3857 Pageview SE/30 Monitor ... 850
3859 Silverview Mac II Monitor ... 1850

MOUSE PADS

Poly Wrist Wrest Company
4305 Carpal Cushion Mousepad ... 14
Precision Line
1306 Mouse Pad - Black (8-1/4x9-1/4) ... 6
1305 Mouse Pad - Blue (8-1/4x9-1/4) ... 6
1307 Mouse Pad - Gray (8-1/4x9-1/4) ... 6
1308 Mouse Pad - Red (8-1/4x9-1/4) ... 6

MULTIMEDIA

Adobe
4670 Premier ... 329
Articulate Systems Inc.
3933 Voice Link ... 180
3932 Voice Navigator II ... 588
0376 Voice Waves Plus ... 44
Bright Star
1942 Hyper Animator 1.5.2 ... 97
2918 Interface ... 248
Digidesign
0268 Audiomedia ... 749
E-Machines
0207 Quick View Sound ... 282
0206 Quick View Studio ... 1795
Electronic Arts
3594 Studio /32 ... 448
3827 Studio 8.2.0 ... 188
2516 Studio/1 ... 55
Farallon
3471 Media Tracks Multimedia Pk ... 349
3473 Mac Recorder Voice Digitizer ... 99
2584 Macrecorder 2.0 ... 158
3470 Media Tracks ... 188
3472 Media Tracks Multimed.CD ROM ... 318
Gold Disk Software
3974 Animation Works ... 120
Koala Technologies Corp
3705 Mac Vision Video Digitzer ... 414
Macromind
2982 Macromind Accelerator ... 124
0839 Macromind Director V3.0 ... 689
3851 Macromind Media Maker ... 495
0838 Macromind Three-D ... 1149
Motion Works, Inc
3985 Addmotion ... 170
Multi-Ad Services, Inc.
0053 Multi-Ad Creator ... 455
0054 Multi Ad Search ... 115
Oiduvai
3895 Olduvai Video Paint ... 278
Monster Group, Inc.
4643 Macspeaker Carry Case For Ms-1 ... 21
Paracomp
3850 Filmmaker 2.0 ... 428
Pixar
4063 CD Showplace/MacRenderman ... 439
4410 MacRenderman ... 399
0030 Showplace/MacRenderman ... 548
Specular International
0815 Infini-D 3D Animator ... 647
Storm Technology
4335 Picture Press 2.0 ... 119
Symmetry
3983 Mariah ... 85
Tactic Software
2860 Sound Clips 1 ... 48
2861 Sound Clips 2 ... 48
3626 Sound Clips 3 ... 48
3627 Sound Clips 4 ... 48
4221 Tactic Stereo Recorder ... 149

MUSIC AND MIDI

Ars Nova
1479 Practica Musica 2.2 ... 65
Bogus
1973 Super Studio Session 2.0 ... 64
Broderbund
1612 Jam Session ... 28
Coda
3127 Finale 2.6.1 ... 548
3128 Musicprose 2.1 ... 298
Electronic Arts
0257 Deluxe Music Constr. Set 2.5 ... 83
Great Wave
3187 Concertware + Midi V5.0 ... 97
Imaja
4281 Imaja Listen ... 64
Mark Of The Unicorn, Inc
4429 Midi Time Piece ... 375
2500 Performer 3.61 ... 375
0539 Profes.Composer 2.3M ... 375
Mibac
4284 Mibac Jazz Improvisation ... 79
4283 Mibac Music Lessons ... 54
Opcode Systems Inc.
3937 E-Z Vision ... 99
3939 Midi Play ... 42
3938 Midi Translator ... 42
4069 The Book Of Midi ... 29
Passport Designs
0309 Audio Trax ... 159
0312 Desktop Music Creativity CD ... 164
0313 Encore ... 378
0310 Hypermusic Midi Player ... 44
2828 Mastertracks Pro 4.5 ... 314
1355 Midi Interface ... 79
2607 Note Writer II ... 349
0311 Sound Apprentice ... 164
3457 Sound Exciter ... 48
0303 Trax 2.0 ... 58
Pg Music
3453 Band-In-A-Box ... 57

NETWORKING AND CONNECTIVITY

Asante
3945 Asante 10T Mau ... 99
3885 Asante 10 Base T Hub ... 659
0327 Asante En/Sc SCSI Ethernet ... 339
0819 Asante Maccon + 30le MC ... 299
0820 Asante Maccon + 30le MC 64 ... 359
4184 Asante Maccon + 30let MC64 ... 249
3641 Asante Maccon + II E En ... 198
3642 Asante Maccon + II Et 64K RAM ... 254
3643 Asante Maccon + II Et En ... 249
0511 Asante Maccon 3 Nubus 64K ... 249
0510 Asante Maccon 3 SE ... 219
3645 Asante Maccon SE/30 E En ... 339
0020 Asante Maccon+ 30le ... 219
3646 Asante Maccon+ 30let ... 199
4334 Asante Maccon+ 30let MC ... 299
0228 Asante Maccon+ 30let64 ... 259
0029 Asante Maccon+ LC/MC Dir.Slot ... 249
3648 Asante Maccon+ SE E ... 199
3649 Asante Maccon+ SE ET MC ... 199
3647 Asante Maccon+30IE 64 ... 269
0221 Asante Maccon+Ile w/64K RAM ... 259
4030 Asante MC + 30 IET/Radius ... 254
4031 Asante MC + 30IE/Radius ... 254
0325 FnLC 10T ... 259
0324 Maccon + LC MC ... 359
4239 Maccon Cblz ... 139
Caravelle Networks Corp
3886 Mac To Mac ... 164
3887 Mac To Mac 10 Pack ... 218
Casady And Greene
2875 Ame 1-10 Users ... 848
2873 Ame Single User ... 158
Cayman Systems
0181 Gator Box Cs ... 1955
3117 Gator Card E/II (II Series) En ... 328
3120 Gator Mail Q (10 Users) ... 675
4415 Gator Print Cs ... 425
CE Software
2689 In/Out (1-10 User) ... 199
4168 Quickmail 2.5 (10 User) ... 399
4169 Quickmail 2.5 (5 User) ... 258
4171 Quickmail 2.5 (50 User) ... 1640
Dayna Communications Inc
3546 Dayna EtherPrint/Thick&Thin ... 349
0003 Dayna EtherPrint 10Baset ... 349
0806 DaynaPORT E/LC ... 219
3547 DaynaPORT E/SE ... 219
0805 DaynaPORT E/Si ... 219
0804 DaynaPORT E/Z ... 219
4139 DaynaPORT E/2 T ... 199
4595 DaynaPORT E/II-T ... 199
4718 DaynaPORT E/II ... 219
4717 DaynaPORT E/30 ... 219
4298 DI2000 4 Pack ... 999
4297 DI2000 Single User ... 215
0321 EtherPrint Plus (4 Devices) ... 599
0322 EtherPrint-T Plus (4 Devices) ... 688
Dove Computer Corp
2532 Ethernet Fastnet III ... 340
2530 Ethernet Fastnet SE ... 340
2531 Ethernet Fastnet SE/30 ... 340
Farallon
3902 Farallon En Mac II Card PN580 ... 289
3901 Farallon En SE/30 Card PN584 ... 289
3904 Farallon Ethernet Mac II 10 Pk ... 3199
3474 Farallon Portable Pak ... 259
0832 PhoneNET - Din-8 ... 31
0826 PhoneNET Appletalk Adpt PN120 ... 10
0827 PhoneNET Check Net ... 63
4160 PhoneNET Connector 50 Pack ... 829
0353 PhoneNET Crd PC Localtlk PN380 ... 208
0955 PhoneNET DB-9 (PN309) ... 34
0828 PhoneNET Din 8 (10 Pk) PN 310 ... 197
2483 PhoneNET Liaison 3.0 ... 258
3900 PhoneNET Managers Pack ... 668
0831 PhoneNET Repeater ... 329
4307 PhoneNET Star Connector PN502 ... 104
0352 PhoneNET Talk Appleshare Pt100 ... 124
2779 PN-301 PhoneNET Star Connector ... 17
2752 Remote Wakeup Modem Cable ... 35
2751 Star Connector (10Pk) PN311 ... 125
3475 Star Connector En PN 501 ... 129
0829 Star Controller 300 Series ... 824
3333 Star Controller En PN 507 ... 1358
3940 TE-347 RJ-11 Patch Panel ... 298
0423 Timbuktu 4.0 30 User Pak ... 1335
2418 Timbuktu Remote 3.0 ... 134
2827 Timbuktu Remote Access Pack ... 837
0422 Timbuktu V4.0 10 Pak ... 682
0420 Timbuktu V4.0 Single User ... 129
1639 Traffic Watch ... 129
FGM, Inc.
0809 Picture This ... 64
Gizmo Technologies
0142 Send Express 2.0 - 2Pk ... 56
0143 Send Express 2.01 5Pk ... 125
4159 Shadowwriter V1.1 ... 127
International Business Software
3918 Dataclub 10 Pack ... 525
3917 Dataclub V1.1 3 Pack ... 229
Microcom
4409 Carbon Copy 2.0 Unlim. Network ... 199
4127 Carbon Copy Mac V2.0 Single ... 58
Microsoft Corporation
4076 M/S Schedule+ 20 Pk V1.0 ... 539
0052 Microsoft Mail 3.0 Mail Server ... 245
4077 Microsoft Schedule + 5 Pk ... 139
0279 MS Mail 1-5 Usr V.3.0 ... 268
Nuvotech
3119 Nuvolink II ... 189
4067 Nuvolink II-T En 10 Base T ... 189
3115 Nuvolink SC ... 388
4462 Nuvolink SC (220V) ... 358
0284 Nuvolink SC-T ... 358
2184 Turbo Bridge ... 318
1225 Turbo Net - DB-9 ... 19
1224 Turbo Net - Din-8 ... 19
3340 Turbo Net 12 Pack Din-8 ... 159
1929 Turbo Net St - DB-9 ... 29
1918 Turbo Net St - Din-8 ... 29
3341 Turbo Net St 12 Pack Din-8 ... 278
1226 Turbo Net To Appletalk Adapter ... 6
3121 Turbo Star (Nuvotech) ... 815
On Technology
4048 Instant Update V 1.0 2 User ... 279
4124 Instant Update V1.0 5 User ... 560
Pharos Technologies
4158 Status Mac Unlimited Users ... 799
4157 Status Mac V2.0 Small Network ... 299

#20201

Product Listings

Now Open 24 Hours

The Mac Zone Established 1986

FIND IT HERE • 1-800-248-0800 • CALL FOR PRODUCTS NOT LISTED

Shiva
2985 Ethergate 1295
3726 Ethergate Interntl Vers. 1295
2700 Etherport II 188
2701 Etherport SE 188
2702 Etherport SE/30 188
4038 Shiva Fast Path V Thick/Thin 1899
1405 Shiva Netbridge 408
1406 Shiva Netserial 274
2542 Shiva Telebridge 408
4156 Shiva Hublet 299
Softwriter
4126 Version Territory 25 User V.20 339
Solutions
0254 Mail Maker 20 User Pack 438
3622 Mailmaker 5 User Pack 1.1 99
Technology Works
4029 Gracelan V.2.0 50 User 299
Tops
3364 Tops 3.0 Network DOS 3.5" 149
3363 Tops 3.0 Network DOS 5.25" 154
3167 Tops 3.0 Network Mac 186
3365 Tops Flashbox Mac Din-8 118
1677 Tops Flashcard (DOS) 149
3429 Tops Flashcard(Micro Channel) 228
1089 Tops Netprint 2.0 124
1844 Tops Repeater 118
1678 Tops Teleconnector - DB-9 19

OPTICAL DRIVES

Core International
4648 Core128Mb 3.5" MO Removable 1699
4649 Core Optical Disk (RMC128-1) 89
Mass Microsystems
0177 Mo 512 Optical Read/Write 2899
PLI
4698 PLI Infinity Optical 3.5" 1699
4699 PLI Internal Infinity Optical 3.5" 1649
2851 PLI Infinity Optical 600 Mb Hd 3399
3686 PLI Optical Cartridge (for#2851) 235

PAINT PROGRAMS

Aldus Corp.
4190 Superpaint V3.0 134
Broderbund
3994 Kid Pix 1.2 31
Claris
2201 Macpaint 2.0 89
Delta Tao Software
4070 Color Mac Cheese V2.07 64
4082 Monet 249
Deneba
2908 Ultrapaint 124
Fractal Design
4460 Fractal Design Painter 199
Mecc
3862 Easy Color Paint 44
Preferred Publishers
3551 Master Color 74
3550 Masterpaint 1.0 34
Supermac Technology
1576 Pixelpaint 2.1 148

PERSONAL FINANCE

Chipsoft
04719 Short Form 1040 EZ 24
04603 MacInTax 1991 -Early Version 61
3525 It:X Forms Designer - Mac 168
3530 It:X SI-171 Federal Emp App 31
Claris
2205 Smartform Designer 288
Dac Easy
4312 Light Checkbk Acctg 2.0 19
Inman Software
3910 Business Plan Toolkit 95
Jian Tools
257 Biz Plan Builder 93
0033 Managing Your Money 4.0 109
Power Up
3631 Calendar Creator Mac 42
1521 Fast Forms 2.0 109
Intuit
4230 Quicken 3.0 Mac 44
Sales Dominator
4269 "Sales Dominator, Ltd 495
Shana Corporation
4496 Informed Autoform 1.2 77
3722 Informed Designer 1.2 158
4547 Informed Manager 2.0 98

PRESENTATION

Aldus Corp.
2424 Aldus Persuasion 2.0 328
Ashon Tate
2011 Ashton Tate Full Impact 2.0 123
Microsoft Corporation
1220 Microsoft Powerpoint 2.01 244
Newton Technologies
0226 Geovista 119
Strategic Mapping Inc.
4675 Atlas Pro 599
Symantec
4464 More 3.1 264

PRINTER SUPPLIES

Golden Ribbons
0231 Imagewriter - Black 4
0235 Imagewriter - Blue 6
0234 Imagewriter - Brown 6
0236 Imagewriter - Green 6
0896 Imagewriter - Multicol 8
0237 Imagewriter - Red 6
Hewlett Packard
4041 HP Toner Cart (P# 92295A) 74
2447 HP Toner Cart(P#92275A) 74
0061 HP Deskjet Cartridge (Black) 16
Kodak
0117 Diconix Prn Paperhd Cartrg/Blk 11
Orange Micro
1517 512K Adapter Kit Grappler 26
3564 Grappler Plus 77
Texas Instruments (MicroLaser)
4661 Envelope Feeder (TEX-7001) 275
4662 2nd Bin Feeder (TEX-7002) 275
4663 Letter Cassette (TEX-7010) 55
4664 Legal Cassette (TEX-7012) 55
4665 1MB Memory Upgrade 239
4666 Toner Kit 42
4667 QPC Cartridge 110
4668 Developer 90

PRINTERS

Abaton Technology Corp
0217 Laserscript Lx 1728
0233 Laserscript Toner (2Pc) 69
Bezier
9753 BP4040 PostScript Laser Printer 1499
Costar
4179 Address Writer 479
4065 Costar Labelwriter II 189
3618 Costar Organizer 169
3607 Label Writer Labels (12 Pack) 48
3490 Label Writer Labels (2 Pack) 11
Microtek
4081 Microtek TrueLaser Drum 119
4047 Microtek True Laser Printer 1399
4080 Microtek TrueLaser Toner 2/Pk 39
QMS
4584 Qms 410 Laser Printer 1999
Texas Instruments
4096 TI PS 17 Microlaser Printer 1300
4313 TI PS 35 Microlaser Printer 1699

PROGRAMMING

Digitalk
2844 Smalltalk/Vmac 123
Foudation Solutions
0417 E-Help 262
High Performance Systems
3836 I Think 375
Icom Simulations
2525 Hypertmon 58
4128 Tmon Pro 149
Mainstay
1207 V.I.P. (Visual Interactive Pro) 99
Microsoft Corporation
2054 Microsoft Quick Basic 1.0 63
Now Software, Inc.
2778 Prototyper 3.0 184
Paragon Courseware
1473 Qued-M 74
Serius Corporation
3410 Serius Animation Objects 64
3411 Serius Communication Objects 64
3408 Serius Developer 339
3409 Serius Programmer 210
Softstream International Inc.
3468 Relational Objex 148
Somak
2782 Script Edit 9
Symantec
2071 Just Enough Pascal 51
4095 Think C V.5.0 199
4178 Think Pascal V4.0 164
4066 Think Reference 69
TGS Systems
4253 TGS Prograph V2.5 299
True Basic
1834 True Basic 2.02 54
Zedcor, Inc.
1964 Zbasic 5.0 98

PROJECT MANAGEMENT

Foundation Solutions
4196 E Planner V.2.0 159
AEC Management Systems
1943 AEC Information Manager 398
ASD Software Inc.
3613 Planisoft Five User 574
3612 Planisoft Single User 138
3614 Planisoft Ten User 838
Claris
4140 MacProject II V2.5 358
Mainstay
1159 Mac Flow 3.5 168
Softstream International Inc.
3465 E Planner V1.5 88
Symmetry
2686 Key Plan 249
Total Access
3989 Sales Max 184

SCANNERS AND OCR SOFTWARE

Abaton Technology Corp
4175 Abaton Transcribe 300 1Bit Scn 965
0216 Abaton Colorcan 300 1795
Advanced Software
2847 Docucomp 88
Animas
0149 Animas True Color Hand Scanner 575
AVR
4551 AVR 3000/CL Plus Image Scanner 1349
4552 AVR 8000/CLX Image Scanner 1549
Caere Corporation
4459 The Typist Plus Graphics 478
4172 Omnipage 3.0 499
Dest
3930 Dest Recognize! OCR 475
3929 Dest Scanner w/Recognize OCR 684
Logitech
0513 Logitech Scan Pad 12
2561 Logi Scan Mac Model 32Digital Dkrm
298
Marstek
4592 MAC 800 64 Hand Scanner 279
4593 Langelo Color Hand Scanner 499
Microtek
4452 Scanmaker 600Z SCSI/Z Int Kit 395
4064 Microtek 600Gs 1198
0369 Microtek 600Zs Color/Gray 1598
0370 Microtek Scanmaker 1850S 2298
Nisca Scanners
4260 Nisca Spectra For The Mac 624
OCR Systems, Inc.
0461 Readright For Macintosh 329
Olduvai
4405 Read It! OCR Pro 3.0 349
2433 Read It! Personal 2.1 168
Xerox
2197 Accutext V3.0 518
The Complete Pc
3231 Half-Page Scanner 294
4476 Full Pg. Scan W/Wrdsc 624
3232 The Complete Full-Page Scanner 624
Thunderware
1353 Thunderscan Mac II Pwr Supply 42
1242 Thunderscan Plus 198
0519 Lightning Scan Compact 289
2212 Thunderware Lightning Scan 400 384
0520 Lightning Scan Pro Scanner 499

SECURITY

Kensington
3676 Pass Proof (Cx, Ci, Left Drive) 70
3660 Pass Proof (For SE Type Cases) 70
4419 Pass Proof Classic 64062 70
3357 Laserwriter II Security System 32
2979 Apple Security Kit System 32

SPREADSHEETS

Acius
0411 4Th Dimension Calc 224
Individual Software
2195 Power Macros For Excel 2.2 33
Informix
2224 Wingz 1.1A 244
Lotus Corp
0518 Lotus 123 - Mac Comp Upgarde 89
0507 Lotus 123 Mac 339
Microsoft Corporation
0227 Microsoft Excel 3.0 - Mac 299

STANDS

Basic Needs Inc.
0812 Monitor Stand For IIcx & IIci 47
Costar
3617 Costar Organizer Jr 78
Ergotron
3840 Mac Tilt Classic 67
1274 Mac Tilt Platinum Plus 67
1273 Mac Tilt SE 67
Kensington
4427 Laserstand-Mac 62578 128
2539 Mac II Stand (No Cables) 19
3353 Macintosh II Monitor Stand 64
3354 Macintosh IIcx Monitor Stand 49
3350 Printer Muffler 80 43
4425 Printer Muffler 80 Stand 19
4426 Space Saving Printer Stand 19
2975 Super Base 31
2976 Tilt Swivel For SE Or SE/30 21
3355 Universal Copy Stand 22
2977 Universal Printer Stand 15
3495 Kensington Side Clip 6

STORAGE MEDIA

Fuji (see rebate on Special Values - Page 3)
2657 Fuji 10 Pk DS/DD 800 Fdisk 8
4562 Fuji100 Pk Box DS/DD Bulk Pack 69
4563 Fuji100 Pk Box DS/HD Bulk Pack 139
2658 Fuji 10 Pk DS/HD 1.44 Fdisks 14
3090 Fuji 10 Pk Rainbow DD Disk 9
Maxell Corporation Of America
9095 Maxell MF2-DD 800K 3.5" Disks 11
9096 Maxell MF2-HD 1.4M 3.5" Disks 19
1578 60 Mb Backup Tape (Cs600Hd) 19
2469 Maxell 150 Backup Tape Cs600Xd 24
PLI
4039 PLI 4Mm Dat Backup Tape 49
0183 Syquest Cartridge 88 Mb 129
Syquest
2183 Syquest 44 Meg Cartridges Unfo 74
4142 Syquest 44 Meg Cart 5 Pack 360
4143 Syquest 44 Meg Cart 10 Pack 700
Sony Corp. Of America
0932 Qd 2040 40 Mb Tape 19
3109 Qd600A Data Crtridge 60Mb Tape 21
1158 Sony 10 Pack DD/DD 803K Disks 12
2192 Sony 10 Pk DD/HD 1.44Mb Disks 19
0938 Sony 50 Pack DD/DD 803K Disks 39
2193 Sony 50 Pk DD/HD 1.44Mb Disks 75

SURGE PROTECTORS AND UPS

American Power
2464 Ups 110SE 208
0305 Ups 370Ci 338
EFI
0280 Surge Protector EFI-153 6 Outlet 46
0281 Surge Protector EFI-453/15 Cord 89
Kensington
3339 Power Tree 10 19
3342 Power Tree 20 27
3343 Power Tree 50 54
3338 Masterpiece Mac II 105
3345 Power Backer 360 269
3346 Power Backer 450 337
3347 Power Backer 520 397
3348 Power Backer 800 746
3349 Power Backer 1200 946
Tripp Lite
4605 Isobar 4 Surge Protector 49
4607 Mac Director 89

SYQUEST DRIVES

Generation Systems
4589 45 Mb Rem Hd 589
4691 88 MB Syquest Removable 799
Maclegend
0921 Hd 45 Rem External 539
Mass Microsystems
0175 Mass Microsys Daa Pak 45 Rem 649
0176 Mass Micro Data Pak Cx 45 Rem 669
4062 Mass Micro DataPak 88 899
PLI
4451 DPI 45Mb Removable Syquest 589
2181 PLI Infinity 40 Turbo Hd Rem 699
2182 PLI Infinity 40/40 Turbo Hd 1199

TABLETS

Kurta
4316 Kurta ADB 12X12 Bund Cordless 339
3010 Kurta ADB 12X12 Tab W/Pen&Cur 329
3011 Kurta ADB 12X17 Tab W/ Pen&Cur 569
3009 Kurta ADB 8.5X11 Tab W/P&C Cls 304
Wacom
0087 12X12 Static Sur 421 E 935
3803 SD-311E 12X18 Elec Stat 1325
4193 SD-320L 15X15 Stand Surf 720
4192 SD-321L 15X15 Elect Surf 795
3801 SD-422L 12 X 12 Tablet 875
3942 SD510 4 Button Cursor 120
3943 SP-310 Stylus (Soft) 99
3677 SD-420E 12X12 Std Surf 799
3802 Sc-100 4 Button Cursor 120
3496 Sd-510C 6X9 Tablet 560

TAPE BACKUP

Everex Systems
2161 Emac 150 Tape Backup Drive 715
2047 Emac 60T Tape Backup Drive 649

TIME MANAGEMENT

Aec Management Systems
3456 Fasttrack Schedule 1.5 138
After Hours Software
3908 Touch Base 2.0 78
Casio
3336 Casio Boss Sf8000 139
Ce Software
3624 Alarming Events 83
1497 Calendar Maker 3.0 30
Chipsoft
3532 It:X Personal Tax Analyist Mac 14
DiscTech
4550 Facilitator 129
Jam Software
4406 Smart Alarms 3.1 1-4 Users 129
4408 Smart Alarms 3.1 5-8 Users 186
4407 Smart Alarms 3.1 Single 62
Mainstay
3931 Mac Schedule Plus 219
3089 Macschedule V2.5 144
Micro Planning Software
0998 Micro Planner Plus 6.X 349
On Technology
4123 Meeting Maker 10 User Pack 548
Portfolio Systems
0119 Dynodex 2.0 71
2922 Dynodex Instant Address Book 56
3978 Dynodex Paper (300 Pages) 14
3977 Dynopage 71
Power Up
0115 Address Book Plus V2.0 62
Westware Inc.
3897 Contact Ease 245
Zedcor, Inc.
3455 Desk 3.03 228

UTILITIES

Abbott Systems
4074 Calc + 38
2895 Canopener 1.1 61
3927 Cheshire 1.0 59
Advanced Software
4534 In Touch V.1.1 42
Affinity
3804 Tempo II Plus 104
Aladdin Systems
2986 Shortcut 45
3458 Stuffit Deluxe 61
Alsoft
2853 Diskexpress II 2.0 49
4543 Master Juggler V1.57 29
2148 Multidisk 55
Alysis
0512 Super Disk ! 59
Applied Engineering
4348 Shadow 69
ASD Software Inc.
3286 Filegurard 138
3323 Fileguard Office Pack 10 789
3322 Fileguard Office Pack 5 488
0412 Maccess & Fileguard Bndl 395
0161 Maccess Card Reader 295
Baseline Publishing
3764 1 Shot Worksheet 56
3763 Apb Express Tape 58
3766 Ind Manager 34
3762 Talking Moose 23
Berkley Systems Design
2785 After Dark 2.0U 28
4046 More After Dark Bundle V.2 41
4053 More After Dark Vol. 1 22
1600 Stepping Out 2.02 54
Bright Star
0415 At Your Service 30
4435 Jeeves 10
4433 Laura 10
4430 Mack 10
4432 Madeline 10
4431 The Boss 10
Casady And Greene
4700 Quickdex II 33
Ce Software
2984 Disktop 4.0 + Gofer 62
2189 Mockpackage Plus Utilities 4.4 31
3771 Quick Keys 2 Version 2.1 93
Central Point Software
4136 Mac Tools 1.2 78
3481 Mac Tools Deluxe 1.2 78
Connectix Corporation
3561 Hand Off II 54
4144 Maxima 2.0 44
4013 MC73 PMMU 148
Custom Applications
3209 Freedom Of Press 3.0 254
3839 Freedom Of Press Light 3 Mac 55
Dantz
1138 Disk Fit 2.0 57
3828 Remote 10Pk (W/O Retrospect) 146
2586 Retrospect 1.3 146
4194 Retrospect Remote 1.3 W/10 Pak 265
Dariana Technology Group
3799 Mac Sleuth System Profiler 85
Datatree
0197 Colordex Kit 10 Pack 125
0196 Colordex Kit 5 Pack 85
0195 Colordex Labeling Kit 35
Dubiclick Software
0238 Calculator Construction Set 2 62
3616 Clickchange 1.04 56
3226 Menufonts 3.0 44
Fifth Generation
3826 Fast Back II (2.5 New Vers.) 117
2067 Powerstation 2.5 37
2194 Pyro! 4.0 For Mac 24
2002 Suitcase II 1.2 48
1020 Superlaserspool 2.0 Single 92
1122 Superspool 5.0 61
Go Technologies
3991 Hot Keys 39
Icom Simulations
3663 Mac Kern 58
4542 On Cue II 56
Insight Development Corp
2423 Macprint 1.2 93
Kent Marsh
0258 Folderbolt 1.01 73
1296 Macsafe II 106
1817 Night Watch For Mac 1.03 83
2755 Quicklock 2.0 33
Kiwi Software
3680 Kiwi Finder Extender 64
Magic Software
1244 Auto Save It V2.0 26
3328 Backmatic 49
3329 Power Icons 26
Magna
3406 Empower I Version 4.0.1 84
3407 Empower II Version 4.0 149
Mainstay
0174 Capture 4.0 For Mac 78
4314 Click Paste V2.1 67
3395 Marco Polo - Twin Pack 129
3394 Marco Polo Single 159
3399 Mark Up - 5 Pack 399
3397 Mark Up - Single User 175
3398 Mark Up - Twin Pack 219
Medialac Tech
3778 Step Ahead 1.0 56
Microcom
3823 Microcom 911 Utilities 88
Microlytics
1940 Gofer 2.0 For Mac 39
Microseeds Publishing
1946 Redux 48
3327 Rival 54
2005 Screen Gems 38
Microspot
0818 Macpalette II 54
4326 Macpalette II(Apple Talk Vers.) 204
Now Software, Inc.
3522 Screen Locker 44
Olduvai
2237 Multiclip 2.0 68
On Technology
4008 Meeting Maker 5 User 314
3198 On Location 1.02 74
Ontrack
3222 Disk Manager Mac 2.23 35
Preferred Publishers
3554 Screen Shot 30
Psybron Software
4268 CalenDAr (DA) 24
Salient
3515 Disk Doubler 3.7 46
Sna - System Network Architects
0410 Offline Version 2.0 59
Solutions
1091 Smartscrap & The Clipper 2.0 55
Supermac Technology
1356 Sentinel 2.2 95
Symantec
4463 S.U.M. 2.1 95
Tactic Software
2854 Icon It V.2.2 44
0148 Masterfinder 49
4218 Traffic Controller 84
Total Systems
3639 Quick Sane 49
Visionary Software
4448 First Thing First 44
Williams And Macias
3325 Disk Finder 24
3324 My Disklabeler III 3.1 41

WORD PROCESSING

A Lasting Impression
3103 Resume Expert 47
3243 Resume Xprt - Cover Letters 47
Baseline Publishing
3941 Thunder 7 56
Claris
4703 Macwrite II w/ Ccr Gra &Grmtik 138
Della Point
3984 Taste-Quickkeys Bundle 94
Deneba
2155 Bigthesaurus 63
1129 Coach Professional 123
1127 Comment 2.0 63
Franklin Elec. Pub., Inc
0010 Franklin Language Master 2.0 44
Ia Software
4176 Report Ideas 78
Individual Software
0432 Individual's Resume Maker 29
Mastersoft
0425 Word For Word - Mac 79
Microlytics
0416 Elements Of Style 1.0 Mac 34
0437 Inside Information 67
0438 Random House Encyclopedia Mac 67
1501 Wordfinder For Mac 33
Microsoft Corporation
2238 Microsoft Word 4.0 244
Nova Development
4263 American English Writing Guide 38
4261 American Handbook Of Business 32
4262 Instant Library Of Quotation 32
Paragon Courseware
3479 Nisus 3.06 244
Personal Bibliographic
4310 Biblio Links (Brs) 98
4265 Biblio Links (Dialog) 98
4311 Biblio Links (Medlars) 98
4532 ProCite 2.0 195
4266 ProSearch 149
Petroglyph Inc.
3944 Editorial Advisor 74
Power Up
3201 Letter Writer Plus 59
Preferred Publishers
2188 Vantage 1.5.1 50
Que
4597 Rightwriter 3.1 53
Reference Software
3143 Grammatik Mac 2.0 57
Sensible Software
4499 Bookends II Mac IIci 63
SNA - System Network Architects
3452 Stylist 45
Spinnaker
0211 Springboard Publisher II 108
0433 The Resume Kit 25
T Maker
4465 WriteNow w/ MacTools&Grammatik 99
Tactic Software
3405 Magic Typist 49
Wordperfect Corporation
3972 Wordperfect 2.0 278
4439 Wordperfect 2.01 (5 Pack) 1299
4170 Wordperfect Office 3.01 92
Wordstar U.S.A.
4477 American Heritage For The Mac 49
Working Software
4061 Last Resort 1.0 28
Writing Tools Group, Inc. (Lifetree)
3813 Correct Grammar 2.0 49



Painter is a unique painting program that succeeds at simulating natural media. Its stunning effects stem from a wide variety of brushes, including chalk tools and felt pens, that are as pressure-sensitive and responsive as the real thing. You can create paintings from scratch or, as shown here, apply special-effects brushes to scanned images.

a dark paint stroke ends up with a tainted tip, which you can remedy by dabbing the pen on a clean white area of the canvas.

For many artists, Painter's built-in brush choices will probably offer everything they need for everyday work. Technically inclined users can dive in and experiment with the program's advanced brush-behavior controls. You can, for example, create chalk that smears underlying colors as a watercolor brush does.

Brushes can be manipulated to change their overall dynamics characteristics (opacity, color, size, or roughness), depending on stylus- or mouse-input variables that include speed, pressure, and direction. A unique feature for owners of a Wacom graphics tablet allows Painter to be fine-tuned to the velocity and pressure with which each user handles the stylus, a feature that's sorely lacking in other painting programs that otherwise support the Wacom hardware.

Painter offers several paper textures that work like PixelPaint Professional's PixelPaper. The paper breaks up the brush stroke to simulate a textured surface. Paper textures can also be applied to existing images as filter effects. Paper libraries appear as swatches in a scrolling window. Two libraries come with the program, and we expect to see others appear on the market.

Painter is not only a tool for creating artwork from scratch; it can also use existing pictures (including scanned images) as a starting point. By cloning a document and using the program's clone brushes, you can manually convert a scanned image into a digital masterpiece. By applying short jabs of the Van Gogh cloner brush to a cloned image, for example, you can gradually approximate (and even mutate) the look of the master.

The driving-rain and felt-pen cloners are great fun, and there are also oil-, pencil-, and chalk-cloning brushes. The Autoclone command lets you apply a brush style to an entire selection or a document as a filtered effect. You can use Painter's Tracing Paper option to view a background image as a template while you paint on a separate document in the foreground (this ability emulates Oasis' most distinctive feature, the LightBox). Painter can open and save files in TIFF, PICT, RIFF, or Photoshop format, in user-definable sizes and resolutions. Masks saved with ColorStudio documents are imported when you open a RIFF document.

Masks, or *friskets*, are used to selectively paint on isolated portions of an image. You create masks by using Painter's freehand drawing tool. You can rotate masks and move them into position, modify how they're displayed, and specify whether tools paint inside or outside them. Painter comes with a library of predefined masks, and you can save custom ones.

The Bottom Line

For the absolute best in digital paintbrushes, crayons, charcoals, and markers, look no further than Painter. Shipped in a novel metal paint can, the program includes a clearly written manual with ample color samples and illustrations. Without question, at $299, Painter is a best buy in the crowded Mac graphics-software arena.

— David Biedny

Get Info

Painter

♟♟♟♟♟

Published by: Fractal Design Corp., 101 Madeline Drive, Suite 204, Aptos, CA 95003; (408) 688-8800.
Version: 1.0.
List Price: $299.



Think Small.

Stuffing files isn't such a novelty any more. People have noticed that hard disks really do fill up fast.

Some of our users don't even think compressing a file 75% is going any great guns.

Or transferring a file in five minutes instead of twenty.

That's because once you get used to some of our economies, you don't even think about them any more.

Except when you notice that you still have most of your hard disk free.

Think about it.

STUFFIT DELUXE

♟♟♟♟♟

© Aladdin Systems, Inc. 408.761.6200 fax:408.761.6206

CIRCLE 183 ON READER SERVICE CARD.

In Macintosh-to-IBM mainframe connectivity, there's only one company that leads the field. Avatar. Following our recent merger with Tri-Data Systems, we now offer the broadest range of Mac-to-mainframe connectivity solutions in the industry. From our cost effective MacMainFrame board-level workstation and gateway solutions, to RISC-based Netway gateway products, we have an answer for every price and performance configuration. All made to the most exacting standards–easy to install and Avatar. easy to use. Just as important, Avatar provides the responsive service and support you'd expect from a leader. To find out how to get your Macs talking with your mainframe, or to get our comprehensive "Macintosh-to-IBM Mainframe Connectivity Guide" call us now toll-free at 1-800-AVA-3270. Avatar. We're the Mac-to-mainframe leader with all the right connections.

THE LEADER IN ITS FIELD. THE LEADER IN THE FIELD IN BETWEEN. THE LEADER IN ITS FIELD.



FREE MACINTOSH-TO-IBM MAINFRAME CONNECTIVITY GUIDE

☐ I'd like to know more about connecting Macintosh computers to my IBM mainframe. Please send me your free "Macintosh-to-IBM Mainframe Connectivity Guide."

NAME

TITLE

COMPANY

STREET

CITY STATE ZIP

TELEPHONE

Call 1-800-AVA-3270 IMU1

Send to: Connectivity Guide, Avatar Corporation, 65 South Street, Hopkinton, MA 01748-2212

The Macintosh name and Apple logo and the IBM name and logo are the registered trademarks, of Apple Computer, Inc. and International Business Machines Corporation respectively, and do not imply sponsorship or endorsement. © 1991 Avatar Corporation.

CIRCLE 21 ON READER SERVICE CARD.

World's Smallest Portable Mass Storage

NEW! *Battery Powered!*

Liberty Systems is the first to offer **Battery Powered Hard Drives!** Charger, batteries, power supply and 120MB drive all fit into our 50 Series.
Now That's Pack-in it!

50cu.in. Series 20Mb Per Cartridge — Mac or IBM



- Hard Drives in 52, 105, 120Mb
- Floptical/20Mb
- Internal Battery includes:
- Int. Battery Pak
- Int. Power supply
- Int. Charger

Floptical®

70cu.in. Series



- Hard Drives in
- 40MB-1000MB
- DAT Drive 1.3 - 2.0 Gig
- Tape Drive 160 - 600Mb

1000MB

Quantum Drives®

115cu.in. Series 90Mb Per Cartridge

- Eraseable Optical 3.5" 128Mb Per Cartridge
- Sony CD-ROM
- Syquest 44Mb/88Mb
- Bernoulli 90MB
- Solid State Drive 40Mb



Bernoulli®

225cu.in Series 90Mb Per Cartridge

- Sony Erasable Optical 5.25" 650Mb Per Cartridge
- Bernoulli/Syquest Dual
- Hard Drives: WREN 8, 1.6Gigs
- Solid State Drive 120 Mb



Dual Bernoulli®

Mac only IBM compatible only Or BOTH! Move from Mac to IBM with the same disk drive. One volume for Mac and one for your IBM compatible. Now you have both worlds in the palm of your hand!

Liberty Systems

(408) 983-1127
fax (408) 243-2885

160 Saratoga Ave., Ste 38, Santa Clara, CA 95051

CIRCLE 176 ON READER SERVICE CARD.

PROGRAMMING

CompileIt! 2.0

Heizer Software's upgraded compiler offers enhanced speed for creating XCMDs and XFCNs from within HyperCard.

CompileIt! 2.0 is a significant upgrade to Heizer Software's HyperTalk compiler. This version supports HyperCard 2.0's new XCMD interface and is significantly faster than the previous version. CompileIt! allows anyone familiar with HyperCard's scripting language to write external commands and functions that extend HyperCard's capabilities.

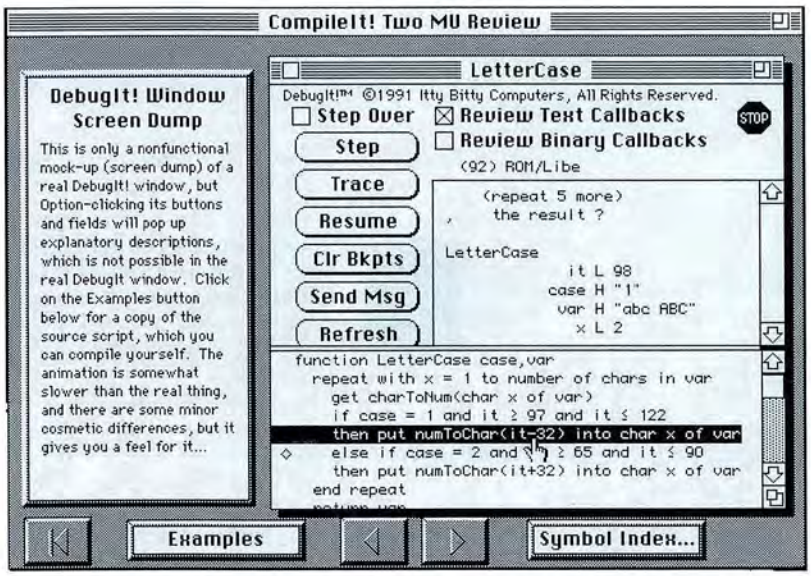
A Stack-Based Compiler

Since HyperCard was introduced in 1987, its XCMD interface has been its most powerful feature. By writing code that conforms to the XCMD-interface format and installing it in a stack's resource fork, programmers can add commands and functions that customize HyperCard's scripting language. CompileIt!'s mandate is to give the power of customization to those unfamiliar with conventional programming languages such as Pascal or C.

CompileIt! is unique in that it is implemented as a HyperCard stack and its programming language is HyperTalk. External commands and functions were given those monikers because Apple programmers expected them to be developed outside of HyperCard, in another programming language. CompileIt!, however, makes developing externals possible within HyperCard.

Although it's implemented as a HyperCard stack, CompileIt! isn't limited to HyperCard. XCMDs developed with CompileIt! can be installed and used in SuperCard projects, for example, or with other products, such as Authorware and MacroMind Director, that support XCMDs.

To create XCMDs with CompileIt!, you type or paste HyperTalk scripts into fields in the CompileIt! stack and click on a button. CompileIt! subsequently compiles the code, installs it in the resource fork of the target stack, and sends you the stack so that you can test the XCMD.



All you need to know is HyperTalk to use CompileIt! 2.0 for creating external commands and functions for HyperCard. The HyperTalk compiler supplies all the basics of a programming environment, including the source-level debugger shown here.

After 20 Million Pages Of PostScript Color Output, The Last Print Looks As Great As The First.



Features That Will Color Your Perception Of Business And Design Forever

- Compatible with Macintosh®, IBM® PC and other popular host computing platforms
- 35 resident Adobe® PostScript® typefaces on a 68020 MPU-based controller
- Model 10*p* ships standard with 4 MB RAM
- Model 10 ships standard with 5 MB RAM for legal-/special A4-size printing
- Model 30*i* ships standard with 8 MB RAM for letter-/A4- to ledger-/A3-size printing
- AppleTalk®, serial and parallel printer interfaces are standard
- SCSI interface supports up to seven external hard drives of unlimited capacity
- 300 x 300 dpi resolution of bright, saturated colors

QMS ColorScript Prints... Brilliant *and* Resilient

Since 1987, QMS ColorScript® 100 printers have produced over 20 million hard copies and transparencies around the world! And because the color technology is engineered to use new ink with each print, the last page literally looks as bright and true as the first.

Presenting The NEW QMS ColorScript 100 Model 10*p* Printer

If it's dynamic presentations you're after, you need the Model 10*p*. From business presentations to training programs, the Model 10*p* delivers vibrant, visually exciting colors that help you communicate ideas clearly.

It's a proven fact that color presentations increase audience information retention and raise a recipient's tendency to act upon the information.

See us at MacWorld, Booth #1925

The QMS ColorScript 100 Model 30*i* Printer, Strictly For The Image Conscious

If you're a graphic designer, commercial artist or publisher, it's easy to see how the Model 30*i* is revolutionizing your business. The Model 30*i* is changing the relationship between speed, quality and cost by allowing you to do your job faster, cheaper *and* better!

The Model 30*i* is the first true "what-you-see-is-what-you-get" color printer. The colors you see on a Pantone-approved monitor are the same colors you'll see on a Model 30*i* proof *and* the same colors you'll see on the finished, printed piece.



CIRCLE 54 ON READER SERVICE CARD.

Calibrated Color From Kodak and QMS

Kodak Precision Color Printer Calibration Software for QMS printers is now available. This optional software is fully compatible with all major desktop publishing and graphics programs.

All QMS ColorScript 100 printers ship with AppleTalk, parallel and serial interfaces to accommodate quick, easy set-up in the most popular host environments.

Top Performers Right Out Of The Box

Call us today and we'll help you decide which QMS printer best fits your needs. Or FAX QMS Product Information at **(205) 633-4866.**

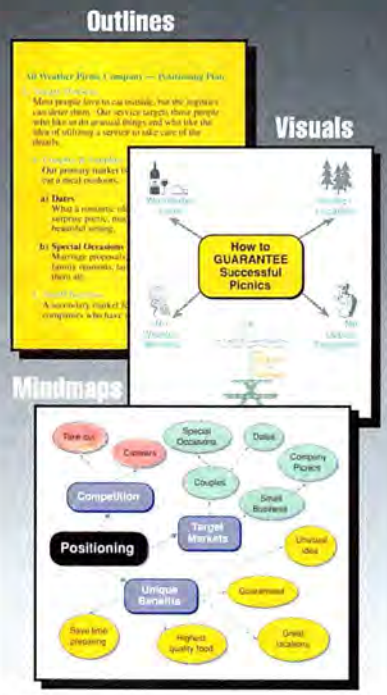
1-800-523-2696 EXT. 213

QMS™

Where Imagination Leads

© 1991 QMS, Inc
The following are trademarks or registered trademarks of their respective companies: QMS, ColorScript and the QMS logo of QMS, Inc. Adobe and PostScript of Adobe Systems, Inc. IBM of International Business Corp. AppleTalk and Macintosh of Apple Computer, Inc. Kodak and Kodak Precision of Eastman Kodak Company, Kodak Precision program contents and patent pending Southwest Software, Inc.
QMS ColorScript Models 10 and 30*i* shown

INSPIRATION™
turns bright ideas into brilliant results!



Your ability to think creatively and express ideas powerfully is your most important professional asset. INSPIRATION, The Thought Processor™, helps you be more creative, sell your ideas, and get better organized.

Brainstorm with INSPIRATION to gain new insights and perspectives on your project or business. Turn your ideas into memorable presentation visuals, flow diagrams and tree charts. Develop concise outlines, proposals, reports and more.

INSPIRATION — a new way to work with ideas. Just $295 suggested retail.

See why Steven Bobker, Contributing Editor, MacUser says:

"INSPIRATION is a brilliant brainstorming, outlining, and writing tool!"

Get the free demo. (800) 877-4292

Ceres Software, Inc.
2920 S.W. Dolph Ct. Suite 3, Portland, Oregon 97219
Voice (503) 245-9011; FAX (503) 246-4292
©1991 Ceres Software Inc.

CIRCLE 20 ON READER SERVICE CARD.

CompileIt! provides various indications of its progress during compilation, which can run in the background under MultiFinder. Here's an indication of its compilation speed: A 40-line test script took only about three minutes to compile into a 2,400-byte XFCN when running in the background on an 8-megabyte Macintosh II.

You'll probably need to revisit the HyperTalk code to debug or improve it. CompileIt!, which has all the basic components of a programming environment, can assist you with all the tools you need to edit and debug code as well as analyze code performance.

Getting the Bugs Out

One of these tools, DebugIt!, is new in version 2.0. DebugIt! is a source-level debugger you can install in the external (adding 40K to the external's size). With DebugIt! installed, you can see (but not modify) the source code, set break points, single-step through the code, and examine and edit the values of variables. You can also halt execution, send HyperCard an arbitrary HyperTalk message, and resume execution.

According to Heizer, DebugIt! is not dependent on any HyperCard-specific features beyond those in HyperCard 1.0, so it should work with any application that supports externals (Heizer has tested it with all the versions of HyperCard and SuperCard).

CompileIt! partially executes its translation by looking up symbols in a symbol table. The symbol table contains not only the names of HyperTalk functions but also the names of those unique to SuperTalk and the names of more than 500 Mac ROM Toolbox routines. The latter are gateways to real Mac programming. CompileIt!'s manual gives a good but brief introduction to ROM calls, which are covered in more depth in *Inside Macintosh.*

Some programming experience is required to use ROM calls. Not only do they speed up code but the roughly 100 Color QuickDraw routines are also useful for SuperCard developers or for anyone developing external windows.

Beginners may stumble when it comes to using numerics and string variables from within CompileIt!, which isn't as forgiving as HyperTalk in the use of these data types. Novices also need to be aware that even if a HyperTalk script compiles perfectly in CompileIt!, it may tend to behave in subtly different ways. This happens because the external cannot occupy exactly the same place in the HyperCard message hierarchy as a HyperTalk script does. Also, because an external, unlike a script, is not associated with an object, the HyperTalk term *me,* which refers to the script's object, doesn't make sense in an external and is not supported.

Although CompileIt!'s manual represents a solid effort (users with some HyperTalk experience will be able to grasp the fundamentals), only programmers with broader experience will be able to make complete sense of it. Even though it acknowledges that it's possible to use CompileIt! to develop other kinds of software, such as Fkeys, the manual doesn't cover such advanced use. The on-line documentation covers most of the manual topics in less depth, and there's Balloon Help for System 7 users.

In addition to the compiler and the 200-page manual, the CompileIt! package contains a demo stack, a batch-compiling stack, Steve Maller's ResCopy, a folder of alternative symbol tables, and HyperCard. The program requires 750K of memory, but Heizer recommends 2 megabytes. To its credit, CompileIt! is clever with memory. As far back as 1975, when 4K was a lot of memory, Tom Pittman, CompileIt!'s creator, wrote a complete BASIC interpreter and sold it for $5 per copy. He understands how to write memory-efficient code.

The Bottom Line

Although the original version of CompileIt! was so slow that it wasn't practical for serious development work, version 2.0 features much-improved compilation speed and supports the latest version of HyperCard. With its unique implementation as a HyperCard stack, CompileIt! makes the process of creating XCMDs and XFCNs accessible to anyone who's familiar with HyperTalk.

— Michael Swaine

Get Info

CompileIt!
★★★★★
Published by: Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523; (415) 943-7667.
Version: 2.0.
List Price: $99.

AGFA PUTS A NEW SPIN ON CD-ROM—POSTSCRIPT® FONTS, TRUETYPE™ FONTS, AND MORE.

The latest twist on fonts is the AgfaType™ CD-ROM V3.0. It's what type on CD should be—the widest selection of fonts and typographic software plus a powerful set of *free* features.

Agfa made the new CD with the type-savvy user in mind. You can choose fonts in the format you want—POSTSCRIPT from Adobe® or TrueType from Apple®

And, we've added the features that you've asked for—features found only on the AgfaType CD-ROM. Your fonts come packed with an on-line electronic catalogue, a new multimedia typography tutorial, the complete collection of screen fonts, the latest shareware, and future upgrades—*free*.

The new interface lets you browse, learn about, select, and then quickly install additional fonts. Choose individual typefaces. There's no waiting for a shipment to arrive—your fonts can be added in minutes with a simple phone call.

Agfa believes that type on CD should give you more choices, more features, *and* more value. To help convince you, we've included Garth Graphic,® a classic typeface, absolutely *free*.

Nothing in the industry can compare with the AgfaType™ CD-ROM V3.0. To take it for a spin, call us today at 1-800-424-TYPE.



PL™ Behemoth Semi-Condensed
PL Benguiat Frisky
Beton Extra Bold
Bernhard Modern
PL Davison Americana
Egiziano Black
TC Europa Bold
PL Futura Maxi Light
PL Futura Maxi Demi

$99

Get the AgfaType CD-ROM V3.0 with 20 exclusive Agfa headline faces unlocked plus a Pi and Symbols font of your choice. An $830 retail value.

TC Jasper
Metropolis
Modern Twenty
ORLANDO
Quirinus Bold
Seina Black
SECTION BOLD CONDENSED
Stratford Bold
PL Tower Condensed
PL Westervelt
WOODBLOCK

Choose from 126 exclusive Agfa Pi and Symbols fonts

HOW DOES THE AGFATYPE CD-ROM V3.0 STACK UP?

(As of July 1, 1991)	AGFA	ADOBE	NEC
PostScript Fonts	1,900+	1,000+	1,000+
Pi and Symbol Fonts	145	19	19
TrueType Fonts	Yes	No	No
Multimedia Type Tutorial	Free	None	None
Electronic Catalog	Free	None	None
Type Applications	Yes	No	No
Shareware	Yes	No	No
Upgrades	Free	?	?



$695

Get a Toshiba TXM3301 drive, the AgfaType CD-ROM with 20 Agfa headline faces unlocked, plus a Pi and Symbols font. A $1,920 value.

Call Agfa for details or the authorized Agfa dealer near you (prices listed are for USA only):

1-800-424-TYPE

AGFA

This ad was designed and produced on a Macintosh and films output on an Agfa SelectSet 5000. Agfa and the Agfa Rhombus are registered trademarks and AgfaType is a trademark of Agfa Gevaert AG. PostScript and ATM are registered trademarks of Adobe Systems Incorporated. Apple and Macintosh are registered trademarks and TrueType is a trademark of Apple Computer, Inc. Toshiba is a registered trademark of Toshiba America Information Systems, Inc. All other trademarked names are property of their respective holders.

POWER BUNDLE™
for the Macintosh® PowerBook™!
A SPECIALLY-DESIGNED CARRYING CASE FILLED WITH A TERRIFIC COLLECTION OF SOFTWARE FOR YOUR MACINTOSH POWERBOOK!

WriteNow™
Lightning-fast word processor that's optimized for the PowerBook! (Easy & MS® Word compatible)

America Online℠
The graphical, easy-to-use online service for Macintosh owners

ClickArt® for Faxes
An innovative collection of electronic FAX cover sheets for business, home, and fun!

Business Expense Reports
Automated business expense tracking and reporting (Includes standard business expense templates)

Address Book Plus™
The best way to manage your names, addresses, phone numbers, and other vital information

Carrying Case for the PowerBook
A high-quality carrying case, custom-made for the Macintosh PowerBook!

A $588.80 Value for $249.95 (Suggested Retail Price)

SEE A POWERBUNDLE AT YOUR LOCAL COMPUTER STORE TODAY!

For more information:
1390 Villa Street
Mountain View, CA 94041
415/962-0195 • Fax: 415/962-0201

T/Maker

TM445

CIRCLE 86 ON READER SERVICE CARD.

ORGANIZATIONAL TOOLS

Dynodex 2.0, Address Book Plus 2.0, and QuickDEX II

For those looking for a speedy way to access addresses and phone numbers, these three programs offer stellar performance.

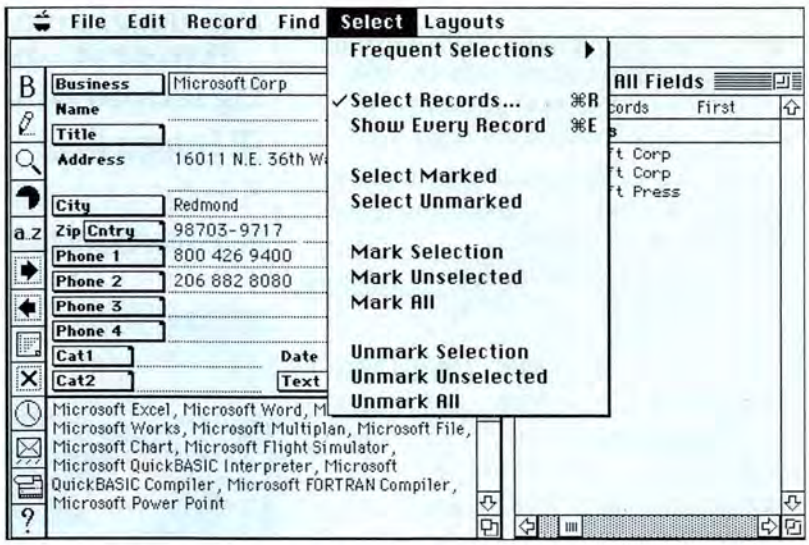
If you use an electronic address book, your paper-based Rolodex was probably relegated to the landfill long ago. Address-book software offers major advantages over paper-based filing methods. In general, access to data is virtually instantaneous, updating is smudge-free, and information is selective and available for printing to special address-book stock.

Three second-generation personal-address-book programs — Dynodex 2.0, Address Book Plus 2.0, and QuickDEX II — are faster and offer more features than previous versions did. Whether you're a veteran user of address-book software or just beginning to contemplate conversion from paper, these three newly revamped programs rate serious consideration if you're looking for a package to suit your own personal needs. If, on the other hand, your chief criterion for address-book software is to get a package that lets your workgroup share a database of names and addresses over a network, you'll have to look elsewhere. None of the three packages reviewed here is designed for network use.

Dynodex 2.0

Dynodex looks strikingly similar to its chief rival, Address Book Plus, although Dynodex's speed and better-designed data-entry screen give it the edge. Dynodex sorts, rearranges, finds, and displays names and personal data quickly. Although searching the program's database is a bit slower than searching with the fully RAM-based QuickDEX II, our tests with a 2,300-item database showed Dynodex's overall performance to be excellent and an improvement over that of its previous version.

Although the program's complex, multifield data-entry screen isn't exactly



Dynodex offers the most-robust search capabilities of the three address-book managers reviewed here. Its extensive marking and selection options translate into powerful screen and print formatting.

GOLD STANDARD TECHNOLOGY



Introducing a new generation of safe-deposit boxes.

Data cannot be valued; it is, in fact, priceless. So never settle for anything less than the peace of mind that comes from saving your data on the best. The very best. Gold Standard Technology. Which you'll find only in the new Maxell Advanced Series 1/4-inch Data Cartridges, Streamer Cassettes, and 4 & 8 mm Data Cartridges.

Since data cartridges are only as good as the tape they house, Maxell researched and developed the most reliable tapes ever — resulting in Maxell's own Epitaxial Magnetic Oxide in the 1/4-inch cartridges, and Ceramic Coated Magnetic tape in the 4 & 8 mm cartridges. Both formats provide the ultimate in high amplitude, stability, and long-term error-free performance. Both are thoroughly tested. And Maxell 1/4-inch cartridges are QIC compatible and meet or exceed all ANSI standards.

Maxell Streamer Cassettes offer a data storage system of unparalleled cost performance and running stability. A system of high technology and simplicity that's as advanced as it is reassuring.

Simply stated, there is no safer place to store your data than on Maxell. Because for your information, you can't beat the Gold Standard.



maxell®
THE GOLD STANDARD

CIRCLE 80 ON READER SERVICE CARD.

CP9122

attractive, it's extensively customizable. We highly recommend dealing with data entry by importing data from other programs. Dynodex imports any tab- or comma-delimited file.

Once you're past the data-entry screen, Dynodex puts on a much prettier face. Its extensive preselective marking and selection capabilities translate directly into powerful screen-formatting and printing options. You can make sorts and selections based on as many as three levels of criteria. After you've made a selection, only selected items are visible on-screen, which is an approach that's superior to Address Book Plus' system of highlighting selections.

Printing address-book data is a snap. Output can be double-sided, and you can add headers and footers. Special paper for a variety of popular organizers is available, and a starter supply for FiloFax binders is supplied with the package. In addition, Dynodex's phone-dialing options are extensive.

Dynodex comes as an application and as a DA. The DA has fewer features than the application, and it can't be used for importing, exporting, or printing. It has a handy auto-save feature that the application lacks, however.

Given the number of Dynodex features, its well-written manual is a godsend. Although the program has no networking features — unlike TouchBase and In-Touch, two other address-book programs — it is still an excellent personal-address-book manager.

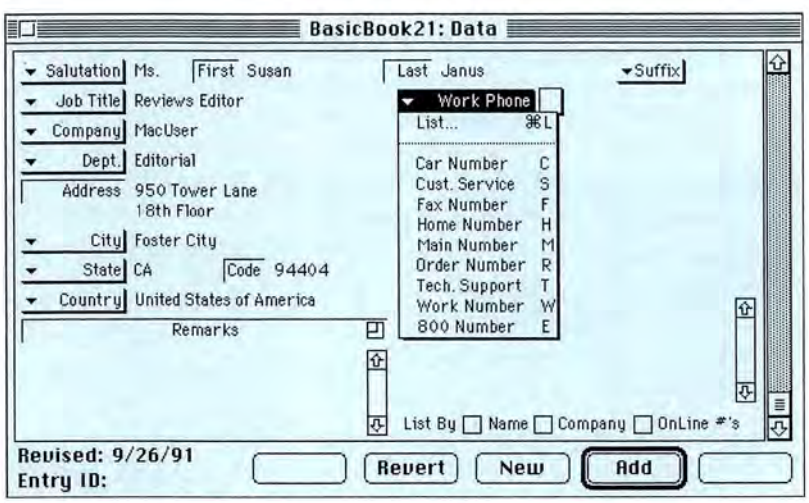
Address Book Plus 2.0

The new version of Address Book Plus is a worthy competitor to Dynodex. The program provides multiple fields per record and matches nearly every Dynodex feature. To its advantage, Address Book Plus has more phone-dialing and printing options than Dynodex does.

As with Dynodex, data entry in Address Book Plus involves a somewhat complex, multifield format that can be customized. From Address Book Plus' data-entry screen, you can move to a Browse window, where you see your data. Selecting a particular record is as speedy as typing the first few letters in a key field. To see an entire record, you can either leave Browse mode to return to the data-entry screen or choose to scroll horizontally, which can be a tedious process. You choose data-selection criteria in Browse mode.

Address Book Plus can operate as an application and as a DA. Most screen and dialing functions work equally well in either implementation.

Address Book Plus' import and export capabilities are more versatile than Dynodex's. You can merge multiple databases, although the program's poor implementation of this feature makes it faster and easier to maintain different databases separately and keep more than one open at a time. You can sort databases, employing up to four fields, and save as many as ten different sorts for instant recall with menu selections or keyboard command equivalents.



Although Address Book Plus can't compete with the speed of Dynodex or QuickDEX II, it offers more phone-dialing options than those two programs do.



The Largest Selection of Macintosh® Products In The World...For Very Little.

Selection.
At ComputerWare, we stock over 1800 different Macintosh products and we can special order any Mac product you can name*.

Low pricing. Payment options.
We offer special volume pricing and flexible terms for qualified corporate and international customers. Various payment options are available including check, COD, credit card and wire transfer.

Experience.
We ship our products to you directly from the heart of the Silicon Valley in California. (Orders often ship the same day).

Established in 1985, our business includes a chain of Macintosh only retail stores in Northern California, as well as a large number of mail order and corporate customers across the United States. We have years of experience exporting both hardware and software to over 65 countries worldwide.

Multilingual sales representatives.
We speak many languages including:
French Italian Japanese
Spanish German

COMPUTERWARE®
THE MACSOURCE

International customers can reach us from 7:00 to 19:00 hrs, PST
Phone: 415 496-1003 Fax: 415 855-9410 AppleLink: X0996
U.S. Corp. & Mail Order customers call 1-800-326-0092 Fax 415-855-0092
2800 West Bayshore Road, Palo Alto, CA USA 94303
*We are restricted from selling some products internationally by the manufacturer.

Do You Make These Six Common Mistakes On Your Taxes?

Six common mistakes can cause you big headaches on your taxes. An oversight here, an omission there. From unnecessary tax payments to full blown IRS audits -- you can end up paying too much ... or worse.

But now, using MacInTax® and your personal computer, you can avoid these simple but costly mistakes:

1 The Arithmetic Error
Today, even the simplest forms contain complex calculations. And with all the late-night scrambling, an innocent mistake could cost you plenty.

2 The Transcription Error
With all those numbers being juggled from schedule to schedule, it's no wonder the figures are so often transcribed incorrectly or entered on the wrong line.

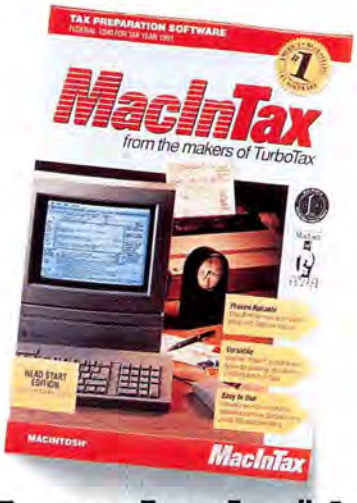
3 The Omitted Form
Even "ordinary" returns require anywhere from six to a dozen forms to complete. It's easy to miss one ... or end up rushing all over town to find the one you need.

4 The Misinterpreted Instruction
At best, IRS instructions can be tough to understand. At worst they can be mind-boggling. What you need are clear directions in plain English.

5 The Overlooked Deduction
You'd have to be a professional tax preparer to know all the deductions you're entitled to. If you miss just one, it could cost you hundreds of dollars.

6 The Exceeded Guideline
The fastest way to trigger an IRS audit is to exceed the "normal" range on one of your deductions. You need to know what the IRS looks for on a line-by-line basis.

When you do your taxes with MacInTax, mistakes like these are virtually impossible. And filing your taxes couldn't be easier.



America's #1 Tax Software

MacInTax is America's #1 best-selling Macintosh tax preparation software -- no others come close! With MacInTax on your Macintosh, you can completely and accurately prepare your income taxes in just a few hours.

Here's how easy it is!

A. *Gather your records and receipts.*
B. *Enter your data into MacInTax just once.*
C. *Print out, sign and drop in the mail.*

MacInTax does the rest. MacInTax asks you step-by-step questions and shows you how to enter every item. And like a good tax advisor, MacInTax helps you identify every deduction you can claim.

Then MacInTax makes all the calculations, checks for accuracy and consistency, and transfers every number to the proper lines on the proper forms. And, MacInTax prints every form you need in IRS-approved format right on your own printer -- ready to sign and mail (or file electronically, if you prefer, for a faster refund).

MACWORLD 1991 World Class Award Winner

Macworld Magazine says "... the most successful special-purpose program yet for the Macintosh ..." Try it for yourself. Free. We know that if you try it, you'll never go back to doing your taxes the old-fashioned way again. So we'll send you MacInTax on an unconditional free trial basis: *If you don't like it, you don't pay for it!*

Free Bonus!



Norton Utilities

Plus, when you buy MacInTax, we'll send you a FREE copy of Norton Utilities as a special bonus gift. Norton Utilities (regular $179) is America's best-selling disk repair and data recovery program. With over 40 different types of error checking, it performs the most extensive diagnosis and repair of any utility program for the Macintosh. And it's yours free when you buy MacInTax.

☐ Yes, I'll try MacInTax FREE!

Rush me a FREE trial copy of MacInTax ASAP (I pay just $8.50 shipping now). I'll try it free for 30 days, and if I don't like it for any reason, I'll just send it back and owe nothing (shipping fee is non-refundable) If I do keep it, I'll be charged $79.00 ($20.00 off the regular price) after my 30-day free trial.

FREE BONUS: Your free copy of Norton Utilities (reg $179) will be sent upon full payment.

Name _____
Address _____
City _____ State _____ Zip _____
Bill My: ❑ Visa ❑ MasterCard ❑ Discover ❑ Amex
Card # _____ Exp. Date _____
Signature _____

SPECIAL OFFER
Pay now in full and we'll send both Norton and MacInTax right away -- and we'll pay the shipping!
❑ Yes, charge my credit card in full now.($79.00)
❑ Yes, check enclosed (payable to "ChipSoft")

Mail your order to: ChipSoft, Box 85709
Or Call NOW: San Diego, CA 92186-5709

800-487-8297 Ext. 750

MacInTax requires Macintosh Plus, System 4.2 or higher and hard drive. California residents please add 7.25% sales tax. Offer expires 4/15/92 -- not valid with any other offer. Offer also includes free HeadStart Edition for orders received through 12/31/91. MacInTax® is a registered trademark of ChipSoft CA, Corp.

Get Real!

With MenuFonts™

The Real Font Menu



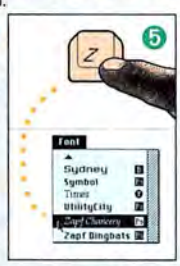
1 See the Real fonts in your font menus.
See what a font looks like before you select it— MenuFonts draws font menus using the real typefaces (instead of Chicago).

2 Dramatically shorten the Font menus.
MenuFonts makes it easier to quickly find fonts on the menu by conveniently grouping font families together on submenus.

3 Get timely information about your fonts, and locate frustrating font ID conflicts.
MenuFonts' FontShow Box displays a font's: ID number, file name, printer file name, and kind (distinguishes between TrueType, Postscript, and bitmapped).

4 Choose the right font & size— right away.
Preview fonts in various sizes from MenuFonts' FontShow Box— built right into the font menu.

5 Turbocharge font menu scrolling with Keyscroll™
Pull down the font menu, and type the first letter of the font you're after. MenuFonts instantly scrolls to select it. Or press the "return" key, and scroll directly to the currently selected font.



6 Configure Font menus to suit your needs.
Have it your way. From the Control Panel, you can choose the font, size, style, and color of every font on the menu. You can even rename fonts, and change the order in which each appears on the menu!

7 Font Menus are in Alphabetical order again!
MenuFonts automatically eliminates unnecessary font name prefixes (like BL, I, UL). So fonts are again in alphabetical order.

8 Identify Postscript & TrueType at a glance.
Menufonts draws icons on the font menu, marking each font as TrueType™, Postscript™, or Bitmapped.



ATR users: upgrade to MenuFonts & save!
For a limited time, users of Adobe's **Type Reunion™** can get real— upgrade to MenuFonts for $29.95 (plus $5 S&H). Same for users of other font menu utilities too. **Call for details: 1(800)359-9079.**

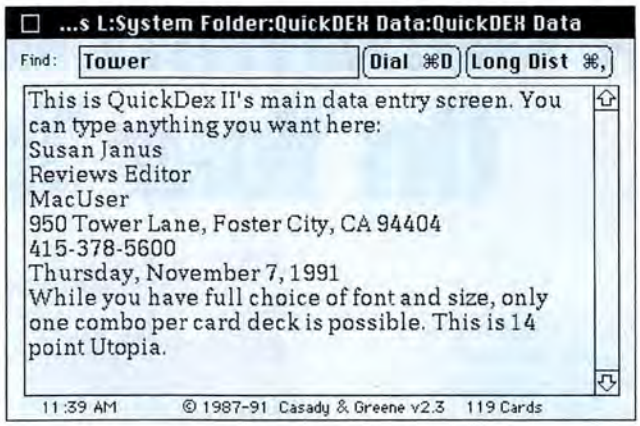
DUBL-CLICK
Doing software your way

►► We've been making software personal ever since Apple introduced Macintosh® back in 1984. Software flexible enough for you to customize. Software designed with you in mind.

Creators of: ArtRoundup • BigCaps • Calculator Construction Set • ClickChange • MenuFonts • WetPaint Clip-Art • World Class Fonts • ©1991; All trademarks of Dubl-Click Software, Inc. • 9316 Deering Avenue • Chatsworth, California 91311 • 800/359-9079

CIRCLE 89 ON READER SERVICE CARD.

REVIEWS



QuickDEX II is a DA that offers unbeatable search speed, but it lacks many of the features found in Dynodex and Address Book Plus.

Address Book Plus is noticeably slower at most operations than Dynodex is. On the plus side, its printing options and control are the best available. Two-sided printing is a breeze, and printing selections from an entire database is faster and easier than with Dynodex. Address Book Plus has no special networking features. Special binder paper can be purchased from the publisher.

QuickDEX II

QuickDEX II is an easy-to-use desk accessory. It's set up like cards in decks. The cards can contain text in any order, and data entry is completely free-form. A single card is able to hold any quantity of data, limited only by the amount of available RAM. The text area is scrollable but not resizable.

Because all QuickDEX data is kept in RAM, the program's performance is outstanding. It's the absolute speed champ among these address-book managers when it comes to searches. You can keep as many as eight decks open simultaneously, and the program's phone-dialing function is similar to the ones in Dynodex and Address Book Plus.

Although you can enter data haphazardly, QuickDEX II functions better if you use a consistent structure. If you don't, phone dialing gets complex, because you have to select numbers manually, and exporting data quickly becomes impossible. QuickDEX II provides no sorting or multiple-criteria-selection capabilities.

Printing address books is not an option with the QuickDEX II package, although the publisher is currently working on two print utilities to remedy that situation. Overall, the program is intuitive and easy to use.

The Bottom Line

Although each of these address-book managers has its strengths, we give Dynodex the highest score. Its data-entry screen is less daunting than Address Book Plus', and it offers excellent search capabilities. However, speed is also an important criterion for products in this category and, on the basis of performance alone, QuickDEX II wins hands down for on-screen search speed. It lags behind the other two programs in features and functionality.

— Steven Bobker

Get Info

Address Book Plus 2.0

★★★★

Published by: Power Up Software, 2929 Campus Drive, San Mateo, CA 94403; (415) 345-5900.
Version: 2.0.
List Price: $99.95.

Dynodex 2.0

★★★★½

Published by: Portfolio Systems, 20370 Town Center Lane, Suite 135, Cupertino, CA 95014; (408) 252-0420.
Version: 2.0.
List Price: $125.

QuickDEX II

★★★½

Published by: Casady & Greene, 22734 Portola Drive, Salinas, CA 93908; (408) 484-9228.
Version: 2.3.
List Price: $60.

TIMEWORKS Explodes the Myth!

Myth: You Have to Spend a Lot to get a Lot in a Desktop Publisher.

Reality: Publish◂It™ *Easy* has All the Power at One-Third the Price!

Whoever said you get what you pay for never used Publish◂It! *Easy*. Because with *Easy* you get a lot more.

Ideal for CLASSIC, SE, LC, IIsi and other Macs*



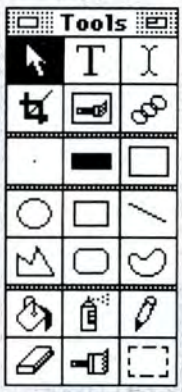
Suggested Retail Price $249.95

For those of you without an art degree, you need an affordable desktop publisher that's easy to use, a snap to learn and combines all the tools needed to create dynamic documents. In other words, you need Publish◂It! *Easy*.

Publish◂It! *Easy*–Version 2.1
The **Affordable** All-In-One Desktop Publisher for the Rest of Us!

With *Easy* everything is included:

- ▶ Easy Page Layout
- ▶ A Complete Word Processor
- ▶ A 112,000-Word Spell Checker
- ▶ A 240,000-Word Thesaurus
- ▶ Our Slide-Show Feature *Create slides, handouts & on-screen presentations*
- ▶ 72 Sample Page Layouts
- ▶ Built-in Drawing and Painting Tools
- ▶ A Quick-Start Mini-Manual
- ▶ *Easy*'s Palette has 21 Built-In Tools:



- ▶ **PLUS NEW File◂It!** – An advanced **Built-In** Database and Mail Merge Program. *Create a database; customize a form letter; select, sort, or edit the information in your database–all without leaving* ***Easy***.

NETWORK VERSION ALSO AVAILABLE!

1990 WINNER MacUser

★★★★½

CHOICE • NOMINEE • MACUSER • EDITORS' 1991

Visit your favorite Dealer and find out why more people are making the *Easy* switch.

Please see us at MacWorld, Booth #2529, Moscone Center.

COMPETITIVE UPGRADE
Own Publish◂It! *Easy* for $99 and Save Over $150

We want you to try *Easy* for only $99. With our 60 day money back guarantee, you have nothing to lose. Just bring this ad with a copy of the title page from the DTP manual you own to your favorite dealer. If the $99 offer is not available at your dealer, send it to us with a check for $99 plus $5.70 postage & handling to: **Timeworks, 625 Academy Drive, Northbrook, IL 60062**
Or call: 1 (800) 323-7744
(Ask for Operator 85)
Fax: 1 (708) 559-1360

Please print:
Name
Address
City State Zip

☐ Visa ☐ MasterCard ☐ American Express
Acct# Exp. Date
Signature

OFFER EXPIRES 12/30/92

TIMEWORKS

Publish It! is a trademark of Timeworks, Inc.
© 1992 Timeworks, Inc. & Eaton Corp. All Rights Reserved
*Not compatible with Macintosh 128K or 512K machines

CIRCLE 114 ON READER SERVICE CARD.

OCR

WordScan Plus

WordScan Plus brings powerful OCR features from Windows to the Macintosh.

WordScan Plus is an impressive optical-character-recognition package that, despite its Windows heritage, adheres to Mac-software standards. With its powerful text-and graphics-selection tools and high accuracy rate, the easy-to-use WordScan Plus is a heavyweight that's sure to give market leader OmniPage a serious run for its money.

Setup's a Snap

WordScan Plus' attractive Setup window is icon-based and easy to use. It lets you set the program to scan pages for text or graphics only or a combination of the two. You can also select page orientation, predefined templates, type quality (dot matrix or normal), and image source (scanner; disk files in TIFF, EPS, or PICT format; or image files received via a fax modem). You can also control brightness.

In Automatic mode, WordScan Plus scans an entire page. You can select Preview mode to designate specific zones on a page for scanning. Once scanning is complete, the program prompts you for another page.

A unique and valuable feature of WordScan Plus lets you control whether text-zone selections for the first page are carried over to every other processed page. OmniPage does this automatically and doesn't offer an alternative. WordScan Plus gives users the freedom to define different text zones on every page of a job, a flexibility that service bureaus and those responsible for transferring hard-copy submissions to data files will come to rely on. This feature permits quick on-the-fly editing and can reduce processing time drastically, because WordScan Plus doesn't read unwanted text such as letterheads or signatures.

When the program has finished scanning and recognizing a page, it prompts you for another one. At this point, you can click on Done and look at what WordScan *thinks* it has read on a page. Its reading accuracy is nearly 20/20. We found that even in the case of dot-matrix material, particularly on poor-quality pages, it did a better job than did OmniPage outfitted with OmniDraft, which is specifically designed to read dot-matrix characters. WordScan Plus also provides a magnified view of any words it's unsure of.

The program features an adequate main dictionary of 75,000 words, which aids the recognition process. User dictionaries suffer from an anemic 1,000-word limit,

HIGH RESOLUTION IS JUST

PERSONAL TYPESETTERS



- 1200 and 1000 dpi plain-paper output
- Letter, legal, A3, A4, and 11" x 17" at up to 20 ppm
- 135 premium Type 1 fonts
- RISC-based processor provides unmatched speed
- Complete PostScript® language compatibility

LaserMaster's 1200 and **1000 Personal Typesetters** offer Macintosh® freedom at an affordable price. Freedom from the expense and hassle of service bureaus. Freedom from paper size limitations and limited typeface choices. Freedom from unproductive down-time while you wait for your printer to print. And with camera-ready copy at just pennies a page, you'll see savings just as quickly as your printed page.

POWERFUL NETWORK PRINTING



- Powerful 400 dpi printing for your entire office
- High duty cycle, 20 ppm work horse
- Letter, legal, A3, A4, and 11" x 17"
- 135 premium Type 1 fonts
- Complete PostScript language compatibility

Increase resolution, decrease delays, and add flexibility to your company's Macintosh network with a **LaserMaster 400XL** printer. The 400XL's RISC-based processor dramatically increases print speed, while its powerful engine handles the heavy printing demands of your entire networked work group. And its paper flexibility is great for newsletters, posters, spreadsheets, CAD drawings, and bleeds.

800 DPI IS BUSINESS RESOLUTION℠



- 800 dpi high resolution at an affordable price
- Legal, letter, and A4 paper capabilities
- 135 premium Type 1 fonts
- Unsurpassed speed from a business printer
- Complete PostScript language compatibility

With the **LaserMaster 800** and **800/4**, LaserMaster has harnessed its patented TurboRes technology to create powerful high-resolution business printers that will make your reports dazzle, your presentations sparkle, and even your most basic correspondence easier to read. Best of all, you can get high-performance 800-dpi Macintosh printing for the same price as a regular 300 or 600-dpi laser printer—or less.

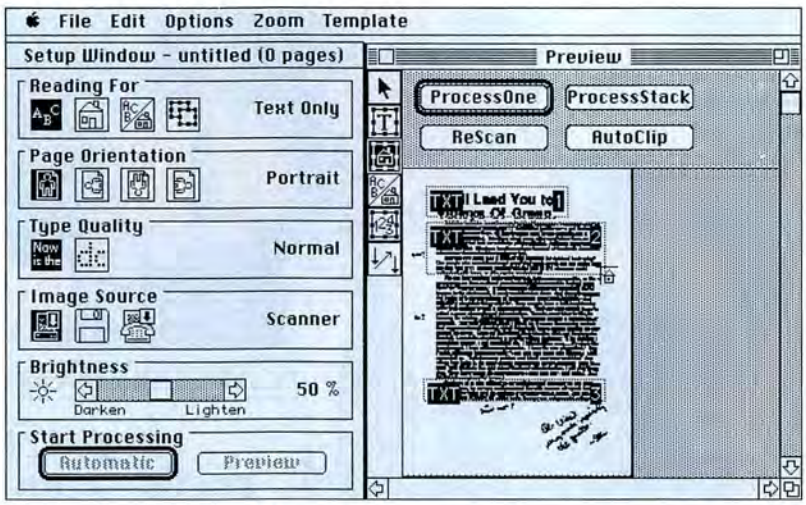
and you can have only one dictionary open at a time.

When scanning is complete, you can save files to disk as unconverted images for deferred processing. You can save files in a variety of text and graphic formats, including WordPerfect, MacWrite, Microsoft RTF, FullWrite Professional, ASCII (with or without carriage returns), tab-delimited text, Excel, WingZ, and FrameMaker.

If a page zone is a graphic, you can save it as a PICT file or in a variety of TIFF formats. The Send Mail option lets those on a network send processed documents to Microsoft Mail users as the documents are saved.

WordScan Plus has several high-end bells and whistles. It lets you select as many as 100 zones on a single page, and you can rearrange them so they're recognized in a specific sequence. You can also designate zones to be read as numbers only, so the number *1* isn't read as the letter *I*, for example.

WordScan Plus is also able to auto-clip graphics from the page and process them as image files at the same time as it processes the text zones. If you are scanning multiple documents in the same session, you can insert a blank page between documents to make the program

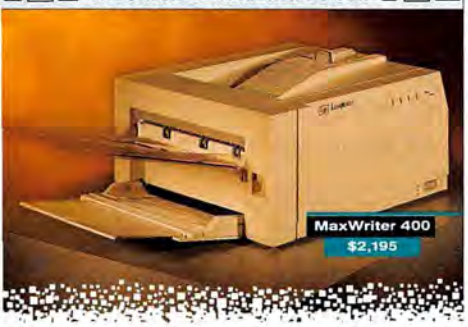


WordScan Plus is a high-end OCR package that's rich with features and power. Its easy-to-use icon buttons let you set scanning parameters and select zones on a page in Preview mode.

ONE OF THE ADVANTAGES.

SEE US AT MACWORLD BOOTH #733

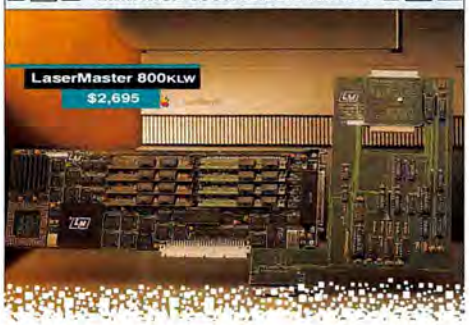
AFFORDABLE PRINTING POWER



- 400 dpi resolution in a desktop machine
- Host-based architecture
- Unmatched affordability
- 50 premium Type 1 fonts
- Complete PostScript language compatibility

Don't let a tight budget limit your choices of a high-performance laser printer. The **MaxWriter™400** provides nearly twice the resolution of standard 300-dpi laser printers at an amazingly affordable price. And while the MaxWriter 400 is small enough to fit on your desktop, it gives you the speed, font versatility, and paper flexibility usually found only in bigger, more expensive printers.

ENHANCE YOUR LASERWRITER



- 800 dpi from your *current* laser printer
- RISC-based processor accelerates print speed
- Six megabytes of high-speed memory
- 50 or 135 premium Type 1 fonts
- Complete PostScript language compatibility

LaserMaster's 800KLW controller transforms your existing LaserWriter™II into a printing powerhouse. From delicate serifs to intricate halftones, every detail of your printed documents will benefit from improved 800-dpi quality. And with its additional memory and specialized processor, you get the power to tackle your most complex PostScript documents **fast.**

CIRCLE 178 ON READER SERVICE CARD.



Sure, LaserMaster printers and personal typesetters give you the unsurpassed high-resolution PostScript output that has made us famous. But that's just one of the advantages of our high-performance printing machines.

TurboRes Enhanced

To learn more about how you can harness LaserMaster's speed, flexibility, and creativity for all your Macintosh II printing needs, call us today at:

800-950-6868 Dept. 010

or call (612) 944-9330

LM LASERMASTER™ CORPORATION

More: Speed, Fonts & Resolution℠

Yes! All text was printed on a LaserMaster Personal Typesetter.

©1991 LaserMaster Corporation, 6900 Shady Oak Road, Eden Prairie, MN 55344. The LM logo and TurboRes are registered trademarks and LaserMaster and MaxWriter are trademarks of LaserMaster Corp. PostScript is a registered trademark of Adobe Systems, Incorporated. Macintosh and LaserWriter are registered trademarks of Apple Computer, Inc. All other product names or brand names are trademarks of their respective holders. Specifications subject to change.



Story

How FileMaker Pro makes one man seem like a cast of thousands.

FileMaker Pro

Jay Nathanson wears a lot of hats. His company – Target Marketing of Richmond, Virginia – is one of the fastest growing small businesses on the East Coast. Ask Jay to explain his success and he'll give you an uncharacteristically succinct response: FileMaker® Pro.

FileMaker Pro wears a lot of hats too. Jay literally built his business with it. He and his lean, mean staff use it to quickly research, quote, present, schedule, ship, label, invoice and generate checks and correspondence for every job. The entire staff can access that data simultaneously – and effortlessly. So almost any question a customer can think of can be answered *while they're on the phone.*

FileMaker Pro even closes Jay's books every month, in 45 minutes. As you might expect, those books look pretty good.

Jay Nathanson is just one of over a quarter-million people who benefit from FileMaker Pro. You can too. To see how call 1-800-729-2292, ext. 20.

CLARIS®

Simply powerful software.™

©1991 Claris Corporation. All rights reserved. In Canada, call 1-800-668-8948, ext. 48. Claris, ClarisWorks, FileMaker, HyperCard, MacDraw, MacPaint, MacProject, MacWrite and SmartForm are registered trademarks and Resolve and Simply Powerful Software are trademarks of Claris Corporation.

save each document as a separate file. This trick is useful if you're working with automatic document feeders.

Scanning with Style

WordScan Plus supplies style sheets that let you reformat documents as they're scanned. You can specify margins, fonts, first-line indents, justification, and line spacing, and the number can even be aligned on decimal tabs.

WordScan Plus requires at least 4 megabytes of RAM, but we found that 5 megabytes or more was needed for processing multipage documents or for using the program under MultiFinder. You need a hard-disk drive with at least 6 megabytes of available space and System 6.05 or later. The software is System 7-compatible but not System 7-savvy.

Calera offers support for a variety of scanners, including the Abaton, Complete PC Page Scanner, Epson ES-300C, Hewlett-Packard ScanJet and ScanJet Plus, Howtek Personal Color Scanner, La Cie Silverscanner, various Microtek models, and any Apple-compatible scanners.

At $895, WordScan Plus costs $100 more than OmniPage 3.0. If $895 is more than you can spend, consider WordScan, a basic, less expensive alternative to WordScan Plus and OmniPage. Priced at $595, WordScan lacks WordScan Plus' high-end features, such as style sheets and multijob processing as well as the ability to select more than one zone on a page at a time.

The Bottom Line

We found WordScan Plus' performance and feature set superior in many ways to that of its main competition, OmniPage. Calera's OCR package is full of features that let users control the recognition process to a fine degree. Its zone-selection capabilities are unsurpassed among Macintosh OCR software, and style sheets let you reformat documents as they're scanned. WordScan Plus sports a hefty $895 price tag, but for cost-conscious buyers, the basic WordScan package is worth serious consideration. An upgrade path is available in case your needs outgrow this no-frills alternative.

The race is far from over in the Mac OCR arena. By the time you read this, a new version of Caere's package — OmniPage Professional — may be available. It's expected to be priced competitively with WordScan Plus and will offer a feature set that parallels many of the capabilities of Calera's package. But currently, WordScan Plus reigns supreme.

— Gregory Wasson

Get Info

WordScan Plus

★★★★½

Published by: Calera Recognition Systems, 475 Potrero Avenue, Santa Clara, CA 94086; (408) 720-8300.
Version: 1.0.
List Price: $895.



CIRCLE 73 ON READER SERVICE CARD.

FrameMaker.

The most comfortable seat in document publishing.



FrameMaker's table editor lets you create detailed tables with straddled cells, graphics, unlimited paragraphs, and rotated text.



FrameMaker automatically reformats multichapter documents, updating page and paragraph numbers as well as cross-references.

To experience a whole new comfort level in document publishing, have a seat in front of a Macintosh® running FrameMaker.®

FrameMaker integrates the entire publishing process into one easy-to-use application: Authoring, editing, graphics, page layout, production, even hypertext. Whether you create short, simple documents or long, structured documentation, you'll feel right at home with FrameMaker.

You'll find our new version, FrameMaker 3.0, even more inviting. You can create your own intricate, multipage tables with its sophisticated table editor. And generate and maintain multiple versions of a single document with its conditional text capabilities. You can even import full-color images and produce four-color output of DCS images.

That's the kind of innovation that earned FrameMaker an Editor's Choice award from MacWEEK and accolades from MacUser.

And of course, it's compatible with System 7.0.

So call 1-800-U4-FRAME ext. 965 for more information on FrameMaker 3.0 and the name of your nearest reseller. And feel how comfortable a position in publishing can be.



Frame™

CIRCLE 126 ON READER SERVICE CARD.

Copyright © 1991 Frame Technology Corporation. International customers please call (408) 433-3311. FrameMaker and Frame Technology are registered trademarks, Frame and the Frame logo are trademarks of Frame Technology Corporation. Macintosh is a registered trademark of Apple Computer, Inc. All other trademarks or registered trademarks are the property of their respective holders.

FINANCIAL MANAGEMENT

Quicken 3.0

Intuit beefs up its best-selling checkbook and personal-finance package with more account types and enhanced reporting.

Managing personal finances has never been easier than with the latest version of Quicken. Version 3.0 delivers a slew of valuable new features, including the ability to handle more than 200 separate account types in one file, unlimited transaction splits among categories, the ability to edit transactions directly in the Register window, varied budgets from month to month, and many new customizable reports.

Held Accountable

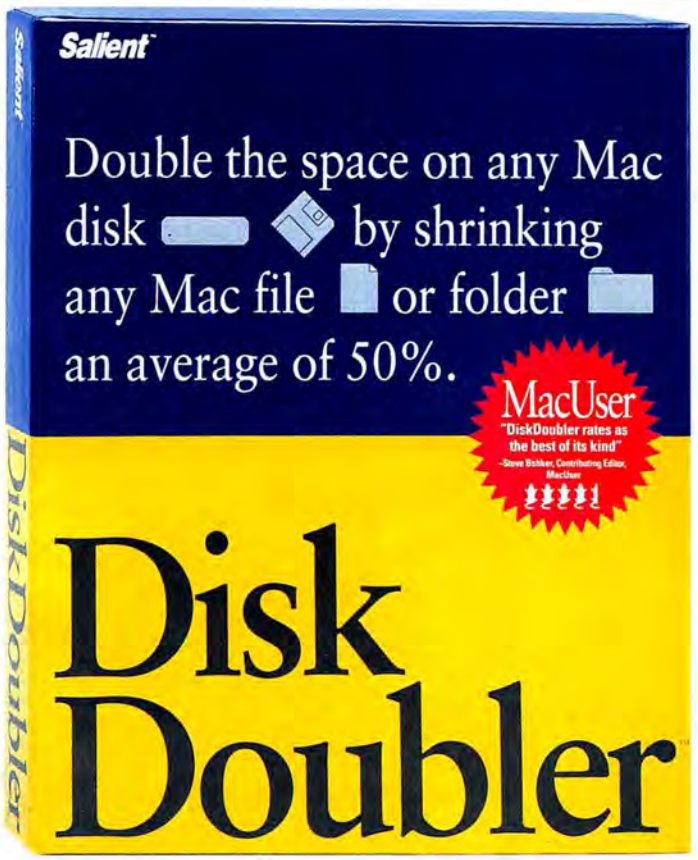
Quicken accounts use the familiar look and feel of standard checkbook registers, so it's easy to use the program. You enter payee, date, number, and amount of each check as well as ATM and other transaction information.

Quicken supports five basic account types: bank, cash, credit card, asset, and liability. The bank account is normally the primary account for transferring funds to and from other accounts. Bank and credit-card accounts operate much as expected: You enter transactions such as deposits, checks, charges, and payments, and then you reconcile the accounts with your monthly statements.

The advantages to automating these basic procedures go far beyond helping you avoid arithmetic errors. By assigning categories and classes to transactions in Quicken, you can track tax information, compare actual income and expenditures to a budget, manage rental properties, maintain a payroll, and print detailed reports (such as Net Worth, Income Statement, and Balance Sheet). Version 3.0's ability to split transactions in an unlimited fashion among categories and subcategories makes for powerful analysis and reporting capabilities.

The asset and liability account types are also new features. They let you track mortgages, stocks, IRAs, depreciable office equipment, and the like. They can also be used to set up accounts receivable and accounts payable.

Quicken's BillMinder feature lets you schedule bill payments. Quicken can remind you to pay due bills either when you start up your machine or when you open the program, which is especially useful for recurring transactions. The program can print checks on almost any printer, and its extensive alignment options and



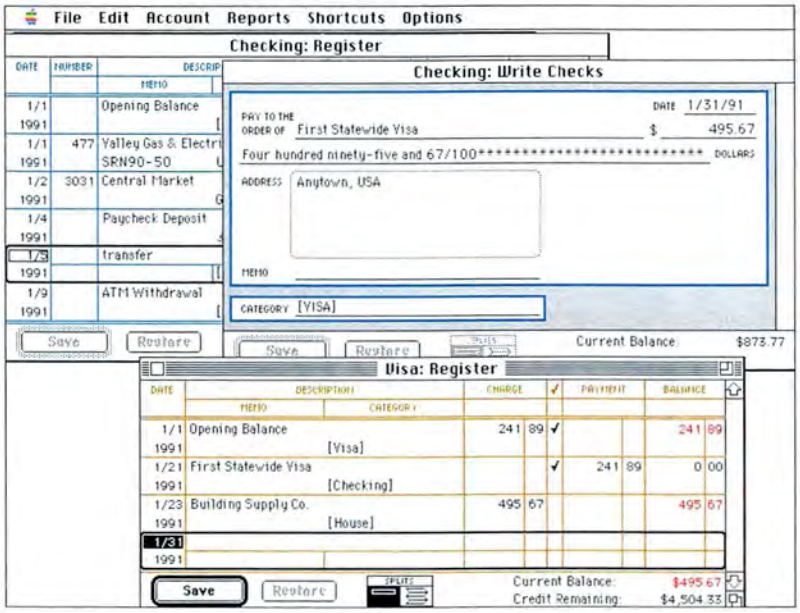
Because no disk is big enough.

Salient SOFTWARE INC
415-321-5375

Available at leading software stores for $79.95 SRP

124 University Ave., Palo Alto, CA 94301. DiskDoubler is a trademark of Salient Software, Inc. © 1991.

CIRCLE 123 ON READER SERVICE CARD.



Quicken 3.0 is a versatile tool for managing personal finances. The program supports more than 200 account types, including credit-card accounts, in a single file. You can also fill out checks on-screen and then print them on a wide variety of printers.

instructions are indispensable.

You can customize Quicken's financial reports. You get a variety of typeface and formatting options, and you can select the information you want to display.

Home reports include Budget, Net Worth, Tax Summary, Cash Flow, and Transaction Detail. Business reports include Balance Sheet, Income Statement, Accounts Receivable and Payable, Payroll, and Project. You can customize reports according to the accounts, classes, and categories displayed as well as by date range, check number, cleared status, transaction amount, and so on. Wildcards are available for defining parameters and for searching for and replacing information throughout the registers.

You can save reports to disk and print them. Quicken exports information in SYLK (Excel) or STD (MacInTax and TurboTax) formats. Exporting tax data requires you to classify transactions as tax-related and match Quicken's categories to those that are contained in the tax programs.



CheckFree

CheckFree is an electronic-payment option that uses modem transfer to send transaction instructions to central clearinghouses. Checkfree Corp. either sends a check for you on a requested date or performs an electronic funds transfer if the payee is set up to receive it. The service costs $9.95 a month for up to 20 transactions, and additional items are priced at $3.50 for 10.

But despite the money you can save in postage and checks (Quicken checks start at about 11 cents each, for a total of 40 cents per first-class-mail payment), we found using CheckFree to be somewhat cumbersome. For one thing, you must be sure to modem your transactions about two weeks before their due date. Another inconvenience is the difficulty of stopping a payment. All in all, this service makes sense only for users who handle many recurring payments.

Quicken's superlative documentation, on-line help system, and user interface all contribute mightily to its usefulness and value. You can enter nearly anything from the keyboard, and you can even customize the keyboard command equivalents for menu items. As you move the scroll-bar box up and down, it shows the transaction date, making it easy to find items. Customized reports can be saved, and you can edit and rearrange category and class lists as well as automate the entry of category names so all you have to do is type the first few characters. The program saves transactions automatically as you work.

Quicken's list of achievements as a personal-financial package is impressive. Be aware, however, that the program is missing the accounting safeguards and advanced features required for serious business use (beyond the needs of a very small company).

The Bottom Line

Quicken 3.0 is a worthy successor to Intuit's original version of the program. The personal-finance package allows you to split transactions among a variety of categories, making it an excellent tool for analyzing the way you spend your money. Although Meca Software's Managing Your Money (see "Your Money and Your Mac," September '91, page 96) supplies more-extensive financial-analysis features, such as retirement planning, tax estimation, investment tracking, and loan analysis, it does so at three times the price of Quicken. We recommend use of Quicken as a simple and inexpensive way for users to control and track their personal finances.

— Becky Waring

Get Info

Quicken 3.0
$$$$$
Published by: Intuit, P.O. Box 3014, Menlo Park, CA 94026; (415) 322-0573.
Version: 3.0.
List Price: $69.95.

Prices, SupraFAXModems

Introducing the SupraFAXModem™ family — three exciting new fax modems for the Mac™! All three modems feature Class 1 & 2 fax commands & compatibility with Group 3 fax machines, plus V.42bis & MNP (2–5, 10) data compression & error correction. And each SupraFAXModem is System 7 compatible & comes with everything needed to use it right away.

Now you can send & receive quality faxes in the background and enjoy transmission scheduling, fax broadcasting to multiple destinations, & an activity log. And for telecom, you'll have a sophisticated scripting language & support for CRC, MacBinary XModem, & YModem protocols.



SupraFAXModem Plus $249.95
9600 S/R FAX • 2400 DATA



SupraFAXModem V.32 $379.95
9600 S/R FAX • 9600 DATA

Supra Corporation

ORDERS: 1-800-944-8772

DISTRIBUTED BY **MERISEL/MACAMERICA**
7101 Supra Drive S.W., Albany, OR 97321 USA • 503-967-2401 Fax • 503-967-2410

Like to shop at the

The original mail-order source for Macintosh products. Since 1984. 1991 Macworld World Class Award Nominee for Best Customer Support-Software.

System 7 Video: Featuring *Macworld* Contributing Editor Lon Poole. *Free* when you order Apple's System 7 for $99 (1074). Or buy one for just $9 (2244). We also have Lon's book *Macworld Guide to System 7* for $19 (2238).

Products preceded by ❼ are compatible with **System 7**. For *specific features* of System 7, please ask when placing your order.

Companies participating in the 30 or 60 day **Money Back Guarantee** program are highlighted with ★. If you are not satisfied with your purchase of any MBG item, call us for an authorization and return it *with all of the original packaging* within the guarantee period for a refund check (or credit on your credit card). We reserve the right to limit quantities on returns.

We carry only the very **latest versions** of products. For products or versions not yet released at press time we've indicated the expected availability dates as supplied to us by the manufacturers. Also, all software is not copy-protected, unless indicated otherwise by *(CP)*.

Corporate Accounts welcome. Bids and P.O.'s accepted. Please call 800/800-4444 for information.



★ Beagle Bros. ... 30 day MBG
3119 ❼ *BeagleWorks*–Integrated word processor, spreadsheet, database, paint, communications & draw modules all in one package. Lets you combine data from other modules & make changes without leaving that document. $185.

COMPUTERS

MacConnection is the exclusive mail-order reseller for Outbound Notebook Systems.

Outbound Systems, Inc.
Full line and accessories available. All units listed below include a 1.4 Floppy Drive, a slip case & universal power supply.

4165	❼Outbound Notebook 2000/240 *(68000, 2 MB, 40 MB Hard Drive)*	2599.
4167	❼Outbound Notebook 2000/440 *(68000, 4 MB, 40 MB Hard Drive)*	2699.
4169	❼Outbound Notebook 2030/440 *(68ec030, 4 MB, 40 MB Hard Drive)*	2999.
4170	❼Outbound Notebook 2030/441 *(same as 2030/440, incl. math copro)*	3149.
4172	❼Outbound Notebook 2030/460 *(68ec030, 4 MB, 60 MB Hard Drive)*	3399.
4174	❼Outbound Notebook 2030/461 *(same as 2030/460, incl. math copro)*	3549.
4175	Extra 12V Battery	59.
4177	Notebook Carrying Case	79.



★ Chipsoft & SoftStream ... 30 day MBG
8279 ❼ *MacInTax Personal Edition 1991 & HyperTax Tutor*–America's best selling tax software for the Mac with HyperTax Tutor, to answer your tax questions & teach you fundamental tax-saving strategies. Prepare your return the same way a tax expert would–without any extra hourly fees. MacInTax is the Editor's Choice of *MacUser* (2/89) & winner of the 1990 *Macworld* World Class Award. Selected state packages are also available. . . . . $99.
8059 ❼ *MacInTax Personal Edition 1991* . . . . . 59.
8175 ❼ *HyperTax Tutor* . . . . . 49.
❼ *MacInTax State Tax Packages* . . . ea. 42.

DAILY BUSINESS

ACCOUNTING, DATABASES, SPREADSHEETS, WORD PROCESSING

A Lasting Impression
❼ResumExpert or Cover Letters. . . . *ea.* 48.
❼ResumExpert Software Series . . . . *ea.* 48.
Abacus Concepts
4482 ❼StatView SE+Graphics 1.04 . . . . . 219.
4138 ❼StatView Student 1.0. . . . . 75.
4481 ❼StatView II or 5840 ❼SuperANOVA . . 309.
★ **Acius ... 30 day MBG**
4024 ❼4th Dimension 2.2 Runtime *(4-user)* . . 249.
5618 ❼4th Dimension 2.2 . . . . . 479.
★ **Advanced Software ... 30 day MBG**
5608 ❼DocuComp 1.5. . . . . 89.
Amaze, Inc.
3582 ❼The Far Side Computer Calendar . . . . . 45.
★ **Avery ... 60 day MBG**
7446 ❼MacLabel Pro 1.5. . . . . 48.
★ **Banner Blue ... 30 day MBG**
3548 ❼Org Plus Advanced 1.0. . . . . 125.



Lotus Development
3606 ❼ *1-2-3 for the Mac*–Takes full advantage of the Mac. Directly manipulate & format all data, text, & graphics. Offers true 3D worksheets & Excel & 1-2-3 file compatibility $349.
3604 ❼ *1-2-3 Competitive Upgrade* . . . . . 99.

★ **Baseline Publishing ... 30 day MBG**
8881 ❼Thunder 7 1.0.4. . . . . 56.
★ **Beagle Bros. ... 30 day MBG**
3119 ❼BeagleWorks . . . . . 185.
3563 ❼BeagleWorks Upgrade. . . . . 95.
★ **Checkfree Corp. ... 30 day MBG**
6928 ❼Checkfree Mac 1.5. . . . . 19.
★ **CheckMark Software ... 60 day MBG**
5862 ❼Payroll 4.5. . . . . 175.
5863 ❼MultiLedger 2.0 . . . . . 235.
3767 ❼MultiLedger/MultiUser 2.0 . . . . . 359.
★ **Chipsoft ... 30 day MBG**
3849 ❼Short Form *(for 1040A & 1040EZ filers)* . 25.
8059 ❼MacInTax Personal Edition 1991 . . . . . 59.
8279 ❼MacInTax Personal Ed./HyperTax Tutor 99.
❼MacInTax State Tax Packages . . . . *ea.* 42.
★ **Claris ... 30 day MBG**
1129 ❼MacWrite II 1.1V2 . . . . . 136.
8216 ❼FileMaker Pro 1.0V2. . . . . 209.
3531 ❼Claris Resolve 1.0. . . . . 279.
1125 ❼MacProject II 2.5V1 . . . . . 349.
3903 ❼ClarisWorks 1.0 *(special 'til 2/28/92)* . . 149.
★ **Dow Jones ... 30 day MBG**
5295 Dow Jones News Retrieval. . . . . 24.
1942 ❼Market Analyzer Plus 2.01 . . . . . 225.
★ **ElseWare Corp. ... 30 day MBG**
1506 ❼DataShaper 1.2 . . . . . 135.
★ **Essential Software ... 30 day MBG**
4086 ❼Easy Alarms 1.1 . . . . . 31.
Fox Software
5572 ❼FoxBASE+/Mac 2.01 . . . . . 289.
★ **Franklin Software ... 30 day MBG**
7070 Language Master 2.0. . . . . 45.
★ **Good Software ... 30 day MBG**
2527 ❼REM's Property Manager. . . . . 339.
★ **Individual Software ... 30 day MBG**
9640 ❼Resume Maker 1.0. . . . . 26.
Informix
4955 ❼Wingz 1.1A. . . . . 245.
★ **Intuit ... 30 day MBG**
2507 ❼Quicken 3.0 . . . . . 42.
★ **Kaetron Software ... 30 day MBG**
8941 ❼TopDown 3.0 . . . . . 199.
Lotus Development
3606 ❼1-2-3 for the Mac . . . . . 349.
3604 ❼1-2-3 Competitive Upgrade . . . . . 99.
★ **Mainstay ... 30 day MBG**
7718 ❼MacFlow 3.54. . . . . 188.
★ **MECA ... 60 day MBG**
2796 ❼Managing Your Money 4.0 . . . . . 99.
★ **Microlytics ... 60 day MBG**
9729 Strunk & White's Elements of Style . . . . . 34.
7820 ❼Random House Encyclopedia 1.0 . . . . 68.
7506 ❼Inside Information 1.0. . . . . 68.

end of the week?



★Provue ... 60 day MBG

4582 ❼ *Panorama II 2.0.3*–Designed with enough power for small businesses & enough convenience for novice users. Includes Clairvoyance & command key equivalents to the Find/Select dialog. Now faster than ever. . . . . $245.

★Microsoft ... 30 day MBG

2572	❼Schedule Plus 1.0	129.
2884	❼Works 2.00E	159.
4902	❼Word 5.0 *(Dec. '91)*	299.
9803	❼Excel 3.0	309.
1420	❼Excel 3.0 Companion Book	20.
2565	❼Project 1.1	449.
5454	❼The Microsoft Office 1.5	479.

★New Era ... 30 day MBG

3130	❼nuBASE 1.3	179.

★Niles & Associates ... 30 day MBG

5048	❼EndLink 1.13	58.
4602	❼EndNote 1.4	85.
8010	❼EndNote Plus 1.1	145.

★Nolo Press ... 30 day MBG

4228	❼For the Record 2.0	30.
2981	❼WillMaker 4.0 *(not valid in LA.)*	35.

★Odesta ... 30 day MBG

5621	❼Double Helix 3.5	429.

Paragon Concepts

5683	❼Nisus 3.06	245.



★Teleware ... 30 day MBG

7616 ❼ *M.Y.O.B. 2.1*–Incredible, easy-to-use, accounting software for small- to medium-sized businesses. Features include fully integrated A/P, A/R, General Ledger, Inventory, Checkbook and Card File. System 7-savvy . . . . . $139.

★Portfolio Systems ... 30 day MBG

7992	❼DynoPage or 6916 ❼Dynodex . . *ea.*	$72.

★PowerUp ... 30 day MBG

7696	❼Calendar Creator 1.01	44.
7694	❼Address Book Plus 2.0	63.
7698	❼Fast Forms 2.0	112.

★Provue ... 60 day MBG

4582	❼Panorama II 2.0.3	245.

★Que Corp. ... 30 day MBG

7482	❼RightWriter for the Mac 3.1	54.

★Reality Technologies ... 30 day MBG

6929	❼WealthBuilder 1.02	95.

★Reference Software ... 30 day MBG

6268	❼Grammatik Mac 2.0	58.

Round Lake Publishing

9946	❼LetterWorks, 9945 ❼LetterWorks Sales 1.0, or 9947 ❼LetterWorks Legal 1.0 . . . *ea.*	45.

★Shana ... 30 day MBG

8810	❼Informed Manager 1.2	99.
7692	❼Informed Designer 1.2	159.

★SoftStream ... 30 day MBG

8175	❼HyperTax Tutor	49.

★Softsync, Inc. ... 30 day MBG

7129	❼Accountant, Inc. 2.1.2	339.
3828	❼Accountant, Inc./MultiUser 1.0	739.

Software Toolworks

8366	❼Dollars & Sense 5.0	59.

★Spyglass ... 60 day MBG

2033	❼Format 1.01	159.
2027	❼Transform 2.0 or 2028 ❼Dicer 1.1 *ea.*	399.

★Survivor Software ... 30 day MBG

3289	❼MacMoney 3.52	59.

★Symantec ... 30 day MBG

2237	❼GreatWorks . . 199. 2278 Upgrade . .	99.
3422	❼More 3.1	265.

★Symmetry ... 30 day MBG

3131	❼Acta 7	75.

★Synergy ... 30 day MBG

6617	❼KaleidaGraph 2.1.3	150.

★Teleware ... 30 day MBG

7616	❼M.Y.O.B. 2.1	139.

★TIMESLIPS ... 30 day MBG

2986	❼Timeslips III 2.0H	194.
8939	❼Accounting Link 1.0B	52.

★T/Maker ... 30 day MBG

3639	❼WriteNow 3.0 *(Feb. '92)*	155.
3508	❼The PowerBundle *(with carry case)*	159.

★Williams & Macias ... 30 day MBG

4976	❼StickyBusiness 1.5	51.
6926	❼myDiskLabeler III 3.1	42.

★WordPerfect ... 60 day MBG

3800	❼WordPerfect Mac 2.03	279.
9865	❼*(5 pack)* . 1195. 9866 ❼*(20 pack)* .	3599.
3090	❼WordPerfect Office 3.0 *(single)*	89.
3092	❼WP Office *(5 pack)* 295. 3088 *(20 pack)*	895.

★Wordstar ... 30 day MBG

3554	❼American Heritage Dictionary	55.
6984	❼Correct Grammar 2.0	59.

★Wyoming Software ... 30 day MBG

3557	❼Business Plan Toolkit 4.0	95.
3555	❼Business Sense 1.4.1	125.

GRAPHICS & DESIGN
PUBLISHING, PRESENTATIONS

★Abracadata, Ltd. ... 30 day MBG

9995	❼Instant Decorator 1.1	29.
9990	❼Design Your Home - Architecture, 9992 Interiors, or 9994 Landscape . . *ea.*	63.

Adobe Systems

	❼Adobe Type Library *(Vol. 1-230)*	call



Adobe Systems

4145 ❼ *Adobe Premiere 1.0*–Easily combines video footage, audio recordings, animation, still images and graphics to create high-quality digital movies. Takes advantage of Apple's QuickTime media-integration technology . . . . . $309.

8794	❼Adobe Type On Call	47.
6957	❼Adobe Type Reunion 1.02	41.
5750	❼Adobe Type Manager 2.0	59.
6053	❼Adobe Plus Pack 2.0	118.
6156	❼Adobe Plus Pack/ATM	174.
6098	❼TypeAlign for ATM 1.0.4	62.
6671	❼Adobe Type Set 1 or 6677 ❼Set 2	62.
7587	❼Adobe Type Set 3	125.
	Adobe Type Sets for Business:	
2221	❼Letters, Memos & Faxes	95.
2223	❼Invitations & Awards	95.
2219	❼Spreadsheets & Graphs	95.
2222	❼Overheads & Slides	95.
8171	❼Adobe Illustrator 3.2 *(with ATM)*	369.
6644	❼Adobe Photoshop 2.0	549.
5001	❼Streamline 2.0	122.
4145	❼Adobe Premiere 1.0	309.

★Aldus ... 30 day MBG

2461	❼Aldus Gallery Effects 1.0	129.
3506	❼Aldus SuperPaint 3.0	133.
6674	❼Aldus Personal Press 1.01	195.



★Abracadata, Ltd. ... 30 day MBG

9990 ❼ *Design Your Own Home-Architecture*–Modify or design the home of your dreams! Includes a library of architectural objects and sample floor plans. Everything you need to create professional drawings or a simple sketch . $63.

370U

MMC

1-800/800-4444

MacConnection®

14 Mill Street, Marlow, NH 03456 603/446-7711 FAX 603/446-7791

We have just the



★ **Expert Software ... 30 day MBG**
4870 ❼ *Expert Color Paint 1.0*–New! The latest in painting tools at an incredible price. You get hot 32-bit color, image editing, and tools that may be customized, anti-aliasing, virtual memory and System 7 support . . . . . $29.

3980 ❼ Aldus Digital Darkroom 2.0 . . . . . 259.
3507 ❼ Aldus Super 3D 2.5 . . . . . 325.
7467 ❼ Aldus PrePrint 1.5 . . . . . 325.
4751 ❼ Aldus Persuasion 2.0 . . . . . 325.
1330 ❼ Aldus FreeHand 3.1 *(Dec. '91)* . . . . . 395.
7088 ❼ Aldus PageMaker 4.2 *(Dec. '91)* . . . . . 495.
8054 ❼ Aldus Design Team *(best buy, includes PageMaker, FreeHand & PrePrint)* . . . . . 859.

Altsys
9806 ❼ Metamorphosis Pro 2.01 . . . . . 89.
1983 ❼ EPS Exchange 1.0 . . . . . 89.
1195 ❼ Fontographer 3.3 . . . . . 265.

★ **Ares Software ... 30 day MBG**
8878 ❼ FontMonger 1.05 . . . . . 62.

★ **Baseline Publishing ... 30 day MBG**
8055 ❼ Screenshot 1.2 . . . . . 34.
7784 ❼ Color MacCheese 2.0.8 . . . . . 56.
7828 Exposure Pro 1.0.2 . . . . . 78.

Bitstream
9428 ❼ True Type Fonts 1 or 9429 Fonts 2 . *ea.* 59.
1591 ❼ True Type Fonts 3 or 1595 Fonts 4 . *ea.* 98.

Broderbund Software
3572 ❼ Kid Pix 1.2 . . . . . 34.
1427 ❼ The Print Shop 1.3.2 . . . . . 35.
6281 ❼ TypeStyler 2.0 *(with ATM, Dec. '91)* . . . 127.

★ **Casady & Greene ... 30 day MBG**
8879 ❼ Fluent Font Library 4.05 . . . . . 99.
1945 ❼ True Type Starter Set . . . . . 57.



★ **SoftSync, Inc. ... 30 day MBG**
7129 ❼ *Accountant, Inc. 2.1.2*–Comprehensive, fully-integrated accounting software that includes General Ledger, Receivables, Payables, Inventory, Invoicing, Payroll, Check Writing & more $339.
3828 ❼ *Accountant, Inc./MultiUser 1.0* . . . . . 739.

★ **Claris ... 30 day MBG**
1123 ❼ MacPaint II 2.0 . . . . . $88.
2518 ❼ MacDraw Pro 1.0 . . . . . 279.
8007 ❼ Claris CAD 2.0 . . . . . 629.

Custom Applications
8037 ❼ Freedom of Press Light 3.01 *(17 fonts)* . 55.

★ **DeltaPoint ... 60 day MBG**
3558 ❼ DeltaGraph Pro *(Dec. '91)* . . . . . 209.

★ **Deneba Software ... 30 day MBG**
3227 ❼ Canvas 3.0 . . . . . 249.

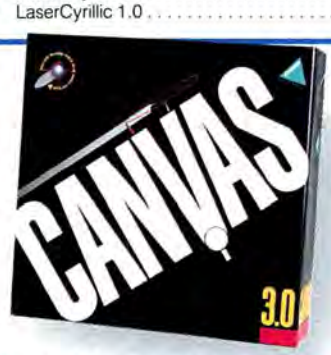
★ **Expert Software ... 30 day MBG**
4870 ❼ Expert Color Paint 1.0 . . . . . 29.

★ **Foundation Publishing ... 60 day MBG**
6728 ❼ Comic Strip Factory 1.6 . . . . . 36.

IDD/Innovative Data Design
2417 ❼ MacDraft 2.1 . . . . . 279.
4707 ❼ Dreams 1.10 . . . . . *special* 349.

★ **Letraset ... 30 day MBG**
2619 ❼ ImageStudio 1.5 . . . . . 139.
4709 ❼ LetraStudio 2.0 *(Dec. '91)* . . . . . 139.
2621 ❼ Ready Set Go! 4.5A . . . . . 165.
6300 ❼ FontStudio 2.0 . . . . . 359.
6302 ❼ DesignStudio 2.0 . . . . . 489.
6301 ❼ ColorStudio 1.5 . . . . . 599.

★ **Linguist's Software ... 60 day MBG**
Over 100 language fonts . . . . . call
2636 MacKanji 6.0 . . . . . 79.
2638 LaserCyrillic 1.0 . . . . . 99.



★ **Deneba Software ... 30 day MBG**
3227 ❼ *Canvas 3.0*–Award-winning precision drawing program featuring Bezier font outlines, professional word-processor-like text capabilities, object blending, a freehand Bezier curve tool, Smart Mouse drawing aid, and more . . . $249.

★ **MacroMind•Paracomp ... 30 day MBG**
3148 ❼ Magic 1.0 *(Dec. '91)* . . . . . 279.
5028 ❼ ModelShop 2.0 . . . . . 599.
❼ SwivelArt *(Map & Viewpoint art)* . . . *ea.* 89.
7441 ❼ Swivel 3D Professional 2.0 . . . . . 435.
3450 ❼ SwivelMan 1.0 . . . . . 599.
3440 ❼ QuickPICS 1.0 . . . . . 99.

★ **Mainstay ... 30 day MBG**
9798 ❼ Capture 4.0 . . . . . 82.

★ **MicroFrontier ... 30 day MBG**
3013 ❼ Color It! 1.0 . . . . . 75.
7886 Enhance 2.0 . . . . . 235.

★ **MicroMaps ... 30 day MBG**
7556 ❼ MapArt *(PICT)* or 7555 *(EPS)* . . . . . *ea.* 89.

★ **Microsoft ... 30 day MBG**
2878 ❼ PowerPoint 2.01E . . . . . 245.

★ **Monotype Typography ... 30 day MBG**
❼ Monotype Imprints·TrueType . . . . . *ea.* 22.
Classic Fonts *(full line available)* . . . . . call

Postcraft International
2210 ❼ Effects Specialist 1.04 . . . . . 95.
❼ Layouts for PageMaker, ReadySetGo, & QuarkXPress . . . . . *ea.* 69.
❼ Layouts: Stationery or Flyers . . . . . *ea.* 45.

Quark
7612 ❼ QuarkXPress 3.1 *(Dec. '91)* . . . . . 569.



★ **Specular International ... 30 day MBG**
4962 ❼ *Infini-D 1.1*–An integrated 3D modeling, 32-bit rendering, & 3D animation package. A powerful 3D environment to create images and present ideas. Features: anti-aliasing, shadowing, 3D texture mapping, noise, & shading . . $649.

★ **Specular International ... 30 day MBG**
4962 ❼ Infini-D 1.1 . . . . . 649.

★ **Spinnaker ... 30 day MBG**
3530 Certificate Maker 2.02 . . . . . 22.

Strata
7773 ❼ Stratavision 3D 2.0 . . . . . 629.

★ **SuperMac Tech. ... 60 day MBG**
3380 ❼ PixelPaint 2.1 . . 149. 5625 ❼ Pro . . 459.

3G Graphics
3942 ❼ Images with Impact: Graphics 1 . . . . . 49.
4583 ❼ Business 1 . . 64. 2003 ❼ People 1 . . 94.
6379 ❼ Accents & Borders I . . . . . 64.

★ **Timeworks ... 30 day MBG**
7115 ❼ Publish It! *Easy* 2.12 with File-It! . . . . . 154.

★ **T/Maker ... 30 day MBG**
Full line available.
❼ ClickArt *(bitmapped)* . . . . . *ea.* 32.
❼ ClickArt *(EPS format)* . . . . . *ea.* 82.
1292 Color Graphics Presentation 1.0 . . . . . 109.

Virtus Corporation ... 30 day MBG
4488 ❼ WalkThrough 1.03 . . . . . 249.

★ **Visual Business Sys. ... 30 day MBG**
9867 ❼ GraphMaster 1.1 . . . . . 189.

★ **Zedcor ... 60 day MBG**
3986 ❼ DeskPaint & DeskDraw 3.0.7 . . . . . 113.

PROGRAMMING

UTILITIES, HYPERCARD, SECURITY

★ **Abbott Systems ... 30 day MBG**
2515 ❼ Calc + 1.0 . . . . . 39.
5236 ❼ CanOpener 2.0 . . . . . 62.

★ **Advanced Software ... 30 day MBG**
8051 ❼ Intouch 1.1 39. 9986 Network *(3-Pak)* 112.
2808 ❼ QuickTools 1.0 . . . . . 45.

After Hours Software
1352 ❼ TouchBASE 2.0 . . . . . 79.

★ **Aladdin Systems ... 30 day MBG**
6169 ❼ Shortcut 1.5 . . . . . 45.
6740 ❼ StuffIt Deluxe 3.0 *(Jan. '92)* . . . . . 62.

★ **Aldus ... 30 day MBG**
5100 ❼ Aldus SuperCard 1.6 *(Dec. '91)* . . . . . 195.

★ **ALSoft ... 30 day MBG**
9808 ❼ MasterJuggler 1.57 . . . . . 25.
9807 ❼ DiskExpress II 2.07 . . . . . 49.
9886 ❼ MultiDisk 1.27 . . . . . 49.

★ **Alysis Software ... 30 day MBG**
2687 ❼ SuperDisk! 2.0 . . . . . 49.

Apple Computer
1074 ❼ System 7 *(with free PCTV video)* . . . . . 99.

★ **ASD Software ... 30 day MBG**
9440 MaccessCard Reader *(reqs. FileGuard)* . 299.
9439 ❼ MaccessCard/FileGuard *(1)* Bundle . . 399.

service you seek.



★ASD Software ... 30 day MBG

MaccessCard Reader combined with FileGuard 2.7 secures your Mac against unauthorized users.

7085 ❼ *FileGuard 2.7 (1 user)* ..... $139.
9440 *MaccessCard Reader (reqs. FileGuard)* .. 299.
9439 ❼ *MaccessCard/FileGuard (1) Bundle* .. 399.

7085 ❼FileGuard 2.7 *(1 user) (Dec. '91)* ..... 139.
7422 ❼*(5 user)*... 489. 7423 ❼*(10 user)*... 799.

★Baseline Publishing ... 30 day MBG
7783 ❼INIT Manager 1.1 ..... 34.
3114 ❼INIT Info ..... 39.

★Berkeley Systems ... 30 day MBG
5737 ❼After Dark 2.0V ..... 28.
2198 ❼More After Dark *(M.A.D)* ..... 23.
2196 ❼After Dark & M.A.D. Bundle ..... 42.
1541 ❼Stepping Out II 2.02 ..... 49.

Bright Star Technology
2614 ❼At Your Service 1.0 ..... 30.
3994 ❼Catalog of Actors *(six)* ..... 55.

★Casady & Greene ... 30 day MBG
2269 ❼QuickDEX 2.3 .. 22. 2528 *(5 Pak)* .. 99.
4485 ❼Crash Barrier 1.0 ..... 45.

★CE Software ... 60 day MBG
1727 ❼CalendarMaker 3.0.1 ..... 31.
6278 ❼DiskTop 4.01 or 3376 ❼Tiles 1.0 .. *ea.* 63.
7518 ❼Alarming Events 1.03 ..... 84.
8024 ❼QuickKeys^2 2.1 ..... 94.

★Central Point ... 30 day MBG
5041 ❼Mac Tools Deluxe 1.2 ..... 79.

★Claris ... 30 day MBG
8734 ❼HyperCard Development Kit 2.1 ..... 139.

★Connectix ... 30 day MBG
7830 ❼Maxima 2.0.1 ..... 45.
6647 ❼HandOff II 2.2.1 ..... 56.

★Cyan ... 30 day MBG
2715 ❼Peacock 2.0 *(for HyperCard)* ..... 43.

★Dantz Development ... 30 day MBG
5255 ❼Retrospect 1.3 ..... 147.
7945 ❼Retrospect Remote 1.3 ..... 264.
7946 ❼Remote *(10 Pak)* . 147. 3112 *(50 Pak)* . 649.
3393 ❼DiskFit Pro 1.0 ..... 74.

Dubl-Click Software
7974 ❼ClickChange 1.05.2 ..... 56.
1824 ❼Calculator Construction Kit 2.09.6 ..... 62.

★ElseWare Corp. ... 30 day MBG
1507 Bar Code Kit 1.0d ..... 135.
4871 ❼Checklist 2.0 ..... 135.

★Fifth Generation ... 30 day MBG
4287 ❼PYRO! 4.01 ..... 25.
3955 ❼Suitcase II 1.2.11 ..... 53.
8286 SuperLaserSpool 2.02 ..... 100.
5178 ❼FastBack Plus or 5725 ❼DiskLock *ea.* 127.

★Go Technology ... 60 day MBG
2966 ❼Hot Keys System 7.0 Finder ..... $21.

★ICOM Simulations ... 30 day MBG
3731 ❼OnCue II 2.0 ..... 56.

★Insight Development ... 30 day MBG
6171 ❼MacPrint 1.23 ..... 93.
1296 ❼Mosaic 1.0 *(3 user)* ..... 249.

★JAM Software USA ... 30 day MBG
6089 ❼Smart Alarms with Appt. Diary 3.0.7 ... 63.

★Kensington ... 30 day MBG
9301 ❼PassProof *(right)* or 9300 *(left)* .... *ea.* 65.
2011 ❼PassProof Classic or 1632 IIsi .... *ea.* 65.

★Kent Marsh Ltd. ... 30 day MBG
9513 ❼FolderBolt 1.02 ..... 73.
2591 ❼The NightWatch 1.03 ..... 84.
9779 ❼GuardCard SE or 9951 SE/30 ... *ea.* 106.

★Kiwi Software ... 60 day MBG
6267 ❼KiwiENVELOPES! 3.1.3 ..... 32.
3518 ❼Kiwi POWER WINDOWS ..... 50.

★Magic Software ... 30 day MBG
7268 ❼POWERicons or 7267 ❼AutoSave II *ea.* 26.
7270 ❼Backmatic 2.01 ..... 50.

★Microcom ... 30 day MBG
8562 ❼Complete Undelete 1.1 ..... 48.
4803 ❼Virex 3.5 ..... 57.
8561 ❼911 Utilities or 2462 ❼Citadel w/Shredder 89.



★Abbott Systems ... 30 day MBG

5236 ❼ *CanOpener 2.0*–Universal file opener. Browse & copy any file, even damaged ones! $62.
2515 ❼ *Calc + 1.0*–Professional replacement for Apple's calculator. Large display, paper tape printout, % key, DTP calculations ..... 39.

MicroMat Computer Systems
2810 ❼MacEKG 1.0.9 ..... 63.

★Microseeds Pub. ... 60 day MBG
7068 ❼INITPicker 2.02 ..... 34.
2913 ❼Redux, 7116 ❼Rival or 2936 ❼HAM *ea.* 49.

★Microsoft ... 30 day MBG
4471 QuickBasic 1.0 ..... 64.

★Nine to Five Software ... 30 day MBG
9767 ❼Reports 2.1 ..... 94.

★Now Software ... 30 day MBG
6925 ❼Now Utilities 3.1 ..... 84.

★ON Technology ... 1 year MBG
6385 ❼On Location 2.0 *(Dec. '91)* ..... 75.
9801 ❼Meeting Maker *(5)* .309. 9800 *(10)* .. 549.
2570 ❼Instant Update *(2)* .. 309. 2571 *(5)* .. 619.

★Palomar Software ... 30 day MBG
8210 ❼PLOTTERgeist 2.0 ..... 249.

★Salient Software ... 30 day MBG
7404 ❼DiskDoubler 3.7 ..... 49.
4838 ❼AutoDoubler 1.0 ..... 49.



★Microcom ... 30 day MBG

Complete disk and file recovery and protection.

8561 ❼ *911 Utilities 1.0* ..... $89.
4803 ❼ *Virex 3.5* ..... 57.
2462 ❼ *Citadel with Shredder 1.0* ..... 89.
8562 ❼ *Complete Undelete 1.1* ..... 48.

★Solutions, Inc. ... 60 day MBG
3448 ❼SmartScrap & The Clipper 2.1 ..... 56.

★Symantec ... 30 day MBG
5176 ❼Symantec AntiVirus for Mac *(SAM)* .... 66.
5724 ❼Symantec Utilities for Mac *(SUM II)* .... 96.
6748 ❼Norton Utilities for the Mac 1.1 ..... 87.
3598 ❼Norton Utilities & SAM Bundle ..... 118.
3421 ❼THINK Pascal 165. 2688 ❼THINK C 199.
9957 ❼THINK Reference 1.0 ..... 69.

★Tactic Software ... 30 day MBG
8964 ❼MasterFinder 1.2 ..... 49.

★TGS Systems ... 60 day MBG
6667 ❼Prograph 2.5 ..... 309.

★Thought I Could ... 30 day MBG
4843 ❼Wallpaper 1.0 ..... 34.

★Visionary Software ... 30 day MBG
3889 ❼Lifeguard 1.0.2 or 4845 ❼MindSet 1.0 35.
3888 ❼Synchronicity 3.0 ..... 35.
3887 ❼First Things First 1.0.2 ..... 41.

★Wolfram Research ... 30 day MBG
8273 ❼Mathematica Enhanced 2.0 ..... 789.



★Salient Software ... 30 day MBG

7404 ❼ *DiskDoubler 3.7*–Because no disk is big enough, this latest System 7 Savvy version provides smaller compressed files, increased speed, simplified file backups, & self-expanding files. *Macworld* 1991 World Class Award winner. $49.

370U

MMC

1-800/800-4444

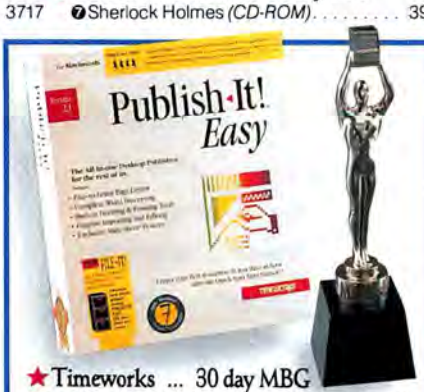
MacConnection®

14 Mill Street, Marlow, NH 03456 603/446-7711 FAX 603/446-7791

Call by noon Sunday.

CD-ROM

Adobe Systems
8794 ❼Adobe Type On Call CD/ATM . . . . . $47.
CD Technology
2321 CD-ROM Caddy . . . . 11. 2533 *(5)* . . . . 49.
8057 Porta Drive CD-ROM . . . . . 599.
4140 ❼Multimedia HANDisc *(Dec. '91)* . . . . . 75.
★**Cyan ... 30 day MBG**
2717 ❼Cosmic Osmo 1.1 *(CD-ROM)* . . . . . 37.
★**Discovery Systems ... 60 day MBG**
9967 ❼Nautilus *(subscription, CD-ROM)* . . . . . 20.
9968 ❼Birds of North America *(CD-ROM)* . . . . 26.
9965 ❼Sherlock Holmes *(CD-ROM)* . . . . . 26.
9966 ❼Shakespeare on Disc *(CD-ROM)* . . . . . 26.
1874 ❼Mammals N. America *(CD-ROM)* . . . . . 52.
Dubl-Click
9944 The WetSet CD *(approx. 7000 images)* . . 218.
★**Everex ... 30 day MBG**
1875 Metro CD-ROM Drive 1.3 . . . . . 469.
★**Highlighted Data ... 30 day MBG**
7771 ❼Webster's Dictionary *(CD-ROM)* . . . . 159.
★**HyperGlot ... 30 day MBG**
7473 ❼Learn To Speak French *(CD-ROM)* . . . . 62.
7829 ❼Learn To Speak Spanish *(CD-ROM)* . . . 62.
2615 ❼Lingua ROM II *(3-CD Set)* . . . . . 649.
★**ICOM Simulations ... 30 day MBG**
3717 ❼Sherlock Holmes *(CD-ROM)* . . . . . 39.



★Timeworks ... 30 day MBG
7115 ❼ *Publish It! Easy 2.12 with File-It!*—This all-in-one desktop publisher combines ease of use with advanced features that make page layout a breeze. Now includes *the new* File-It!, a built-in database and mail-merge program! . . . . . $154.

★**Microsoft ... 30 day MBG**
6382 ❼The Microsoft Office *(CD-ROM)* . . . . . 479.
NEC
6625 Clip-Art 3D *(2500 full-color images)* . . . . 246.
6636 Image Gallery *(2800 line art)* . . . . . 246.
9441 CDR36 CD-ROM Portable Drive . . . . . 399.
2595 General Reference CD-ROM Bundle *(includes CDR36, kit & 7 titles)* . . . . . 529.
Passport Designs
8255 ❼Music Creativity Kit CD . . . . . 189.
8607 ❼Music Production Kit CD . . . . . 1199.
★**Penton Overseas ... 30 day MBG**
2611 ❼Vocabulearn/ce 2.0 Spanish 1 CD . . . . 69.
2610 ❼Vocabulearn/ce 2.0 French 1 CD . . . . . 69.
Pixar
3566 ❼Showplace/RenderMan CD . . . . . 449.
Software Toolworks
3915 Grolier Encyclopedia *(CD-ROM)* . . . . . 249.
4397 Time Table History *(CD-ROM)* . . . . . 57.
★**Tactic Software ... 30 day MBG**
2519 Tactic Multi-Media CD . . . . . 149.
★**Voyager ... 30 day MBG**
3921 ❼Mozart Dissonant Quartet CD . . . . . 39.
3917 ❼A Silly, Noisy House CD . . . . . 39.
3919 ❼AmandaStories CD *(Jan. '92)* . . . . . 39.



★Synergy Software ... 30 day MBG
6618 ❼ *VersaTerm 4.6*—Cost effective TCP/IP Telnet networking & FTP (client/server) file transfer services are included with our award winning terminal emulation applications. $90.
6619 ❼ *VersaTerm-PRO 3.6* . . . . . 177.

VIDEO & SOUND
MUSIC, MIDI, ANIMATION

★**Ars Nova ... 30 day MBG**
1215 ❼Practica Musica 2.2 . . . . . 66.
★**Bogas Productions ... 60 day MBG**
6135 Super Studio Session with Music Library . 99.
Coda Music Systems
5604 ❼Finale 2.6.1 . . . . . 549.
8188 ❼MusicProse 2.1 . . . . . 299.
Full Logic Studios
1163 ❼Mac-Sound *(241 great sound effects)* . . 79.
★**MacroMind•Paracomp ... 30 day MBG**
9353 ❼MacroMind MediaMaker 1.2 . . . . . 479.
6159 ❼MacroMind Accelerator 3.0 . . . . . 135.
5087 ❼MacroMind Director 3.0 . . . . . 689.
2246 ❼MacroMind Three-D 1.0 . . . . . 1029.
7839 ❼FilmMaker 2.0.1 . . . . . 435.
2199 MacRecorder Sound System 2.0.5 . . . . . 174.
Mass Microsystems
2592 QuickImage 24 . . . . . 289.
Passport Designs
8253 ❼TRAX 2.2 . . . . . 57.
9442 ❼Audio TRAX 1.0 . . . . . 209.
3117 ❼Master Tracks PRO 4 4.5 . . . . . 315.
8250 ❼Encore 2.07 . . . . . 379.
3115 ❼MIDI Interface . . . . . 79.



Pixar
3566 ❼ *Showplace & MacRenderMan CD-ROM*—Complete with: Showplace & MacRenderMan applications, access to on-line documentation, and a gallery of images and animations . $449.
1596 ❼ *Showplace & MacRenderMan Bundle* 649.

PCTV
2244 System 7 Video with Lon Poole *(VHS)* . . . . $9.
2245 System 7 Video with Lon's Book . . . . . 25.
Pixar
1596 ❼ShowPlace/MacRenderMan Bundle . 649.
RasterOps
8526 Video Expander . . . . . 499.
7457 Video ColorBoard 364 . . . . . 699.
3224 Expresso Slide Scanner . . . . . 699.
9784 RasterOps 24SI . 649. 8944 24STV . 1249.
★**Sound Source ... 30 day MBG**
3547 ❼Star Trek: The Logical Collection . . . . . 29.
3607 ❼Star Trek: The Final Frontier . . . . . 29.
4920 ❼Star Trek: The Bundle *(I gotta have both!)* 49.
★**SuperMac Tech. ... 60 day MBG**
1813 Color Calibrator . . . . . 499.
1844 Spectrum/8 Series III . . . . . 559.
1851 Spectrum/24 Series III . . . . . 2099.
1877 Spectrum/8LC or 2026 S/8si . . . . . *ea.* 559.
2330 Spectrum/8-24 PDQ or 2231 PDQsi *ea.* 999.
4122 VideoSpigot LC or 4114 VS IIsi . . . . *ea.* 349.
4164 VideoSpigot *(for NuBus)* . . . . . 419.
★**Symmetry ... 30 day MBG**
8172 ❼Mariah 1.0 . . . . . 93.
★**Voyager ... 30 day MBG**
9322 ❼Voyager Videostack 2.2 . . . . . 65.
9328 ❼Voyager CD Audiostack . . . . . 65.
9326 ❼Beethoven or 9327 ❼Stravinsky . . *ea.* 65.
3316 ❼Exotic Japan 1.0 *(CD-ROM)* . . . . . 65.



★SuperMac Tech. ... 60 day MBG
VideoSpigot—Digital-video frame grabber for making QuickTime movies. Includes *free* copy of Adobe Premiere thru 1/31/92.
4122 *VideoSpigot LC or 4114 VS si* . . . . . $349.
4164 *VideoSpigot (for NuBus)* . . . . . 419.

LEARN & PLAY
FOREIGN LANGUAGES, TRAINING, GAMES

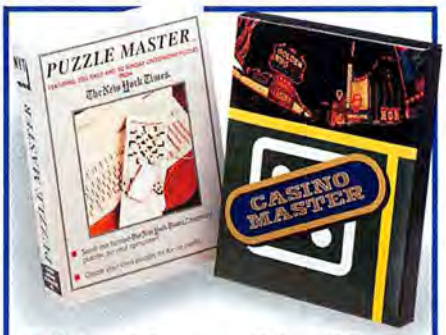
Accolade
1423 Hard Ball II or 8217 Ishido . . . . . *ea.* 31.
8220 ❼Jack Nicklaus Golf . . . . . 34.
★**Aldus ... 30 day MBG**
3503 ❼Dark Castle . . . . . 34.
3502 ❼Beyond Dark Castle . . . . . 34.
★**Baseline Publishing ... 30 day MBG**
7785 ❼Talking Moose 4.0 . . . . . 23.
★**Beacon Technology ... 30 day MBG**
4967 ❼HyperBible *(KJV)* or 4968 *(NIV)* . . *ea.* 125.
Broderbund Software
4314 ❼Type! 1.0 . . . . . 18.
6516 The Playroom *(CP) (color)* . . . . . 29.
❼Carmen Sandiego Series *(CP)* . . . . *ea.* 29.
6384 ❼PlayMaker Football *(color)* . . . . . 29.
9804 ❼RoboSport or 8195 ❼BannerMania *ea.* 35.
3562 ❼Patton Strikes Back . . . . . 35.
3559 ❼SimAnt . . . . . 35.
8266 ❼SimEarth 1.0 . . . . . 40.
4966 SimCity *(CP)* . . . 29. 5871 ❼Supreme . . . 47.

Get it on Monday.



★ **Software Ventures ... 30 day MBG**
3455 ❼ *MicroPhone II 4.0*–The only telecommunications software that's System 7-savvy with Publish and Subscribe, Apple Events, Connection Manager, IAC & Balloon Help. Works with PowerBooks & Quadras. VT220/320 added **$215.**

★ Carina Software ... 30 day MBG
5726 ❼ Voyager 1.2 . . . . . 87.
★ Casady & Greene ... 30 day MBG
4119 ❼ Crystal Quest with Critter Editor 2.2x. . . 29.
7495 ❼ Mission Starlight or 7498 ❼ Sky Shadow 29.
3343 ❼ Aqua Blooper Piper 1.0 . . . . . 29.
3342 ❼ Glider 4.0 . . . . . 29.
4960 ❼ Fun Bundle *(includes Crystal Quest w/CE, Sky Shadow & Mission Starlight)* . . . . . 59.
★ Centron Software ... 30 day MBG
2707 ❼ Puzzle Master . . . . . 26.
8525 ❼ Casino Master *(B&W)* 41. 8524 *(Color)* 45.
★ Davidson & Assoc. ... 30 day MBG
3922 ❼ Talking Spell It Plus . . . . . 29.
6128 ❼ MathBlaster Mystery . . . . . 29.
2574 ❼ MathBlaster Plus . . . . . 35.
8278 ❼ Alge-Blaster Plus . . . . . 35.
3923 ❼ Personal Trainer SAT . . . . . 35.
★ Deadly Games ... 30 day MBG
2811 ❼ Bomber 2.22 . . . . . 31.
3460 ❼ Battle of Britain II *(Dec. '91)* . . . . . 31.



★ **Centron Software ... 30 day MBG**
2707 ❼ *Puzzle Master*–Incl. 200 Daily/50 Sunday Puzzles from NY Times, or create your own **$26.**
Casino Master–Incl. BlackJack, Craps, Roulette, Video Poker, Baccarat. Exact simulations.
8525 ❼ *B&W 3.24* 41. 8524 ❼ *Color 4.1* 45.

EARTHQUEST
3118 ❼ EARTHQUEST Ecology 1.0 . . . . . $34.
8050 ❼ EARTHQUEST 2.0 . . . . . 39.
Electronic Arts
6716 Pipe Dream 1.2 . . . . . 17.
1303 ❼ Loom 1.0 . . . . . 29.
8194 Armor Alley 1.0.1 . . . . . 32.
8643 ❼ Harpoon . . . . . 39.
1907 ❼ PGA Golf or 2963 ❼ Starflight II 1.0 *ea.* 39.
2962 ❼ Harpoon Challenger Pak . . . . . 59.
3385 ❼ Secret of the Silver Blades . . . . . 39.
FTL/Software Heaven
1555 OIDS 1.0 . . . . . 25.
★ Great Wave ... 30 day MBG
2276 ❼ Kid's Time 1.3 . . . . . 25.
5642 ❼ Kid's Math 1.1 . . . . . 25.
4334 ❼ NumberMaze . . 25. 8527 ❼ *(Color)* . . 35.
8044 ❼ NM Decimals & Fractions *(Color)* . . . . . 35.
1517 ❼ ReadingMaze . . 25. 1513 ❼ *(Color)* . . 35.
★ HyperGlot Software ... 30 day MBG
❼ Word Torture 4.0-Beginner to Advanced *(Span., Fren., Germ., Ital. & Rus.)* . . . *ea.* 35.
❼ Pronunciation Tutor - Beginner *(Span., Fren.)* . *ea.* 35. *(Germ., Chin.)* . 39.
❼ Verb Tutor - Intermediate *(Spanish, French, German)* . . . . . *ea.* 39.
❼ Tense Tutor 2.0 *(Spanish, French, German, Italian)* . . . *ea.* 39.
❼ Survival Manual *(Span., Fren., Germ., Ital., Chin. & Rus.)* *ea.* 39.
★ Inline Design ... 30 day MBG
1562 ❼ 3 in Three . . . . . 31.
1944 ❼ Swamp Gas . . . . . 31.
8809 ❼ Tesserae *(addictive puzzle)* . . . . . 31.
7622 ❼ Darwin's Dilemma 2.0 *(Dec. '91)* . . . . . 31.
3414 ❼ Mutant Beach *(Dec. '91)* . . . . . 44.
Interplay Productions
1894 ❼ BattleChess *(3D animation)* . . . . . 29.
3520 ❼ Dvorak on Typing *(Dec. '91)* . . . . . 29.
1893 ❼ CheckMate *(infinite play levels)* . . . . . 31.
3534 ❼ Castles 1.0 *(Feb. '92)* . . . . . 34.
★ Learning Company ... 30 day MBG
2670 ❼ Reader Rabbit 3.0 *(CP) (ages 4-7)* . . . . 34.
3272 ❼ Outnumbered 1.0 . . . . . 34.
3281 ❼ The Writing Center 1.0 . . . . . 51.
★ Leister Productions ... 30 day MBG
7126 ❼ Reunion 3.0 . . . . . 115.
Mallard Software
❼ Scenery Disks 1-4 Flight Simulator. *ea.* 30.
★ MECC ... 30 day MBG
3963 ❼ Oregon Trail 1.0 . . . . . 28.
3960 ❼ Number Munchers 1.2 . . . . . 28.
3959 ❼ Word Munchers 1.2 . . . . . 28.
4095 ❼ Super Munchers 1.0 . . . . . 28.
Micro League Sports
4961 Basketball . . . . . 29.
4936 Baseball . . . . 29. 4946 Football . . . . 29.
★ Microsoft ... 30 day MBG
2868 ❼ Flight Simulator 4.0 *(CP)* . . . . . 43.
★ Mysterium Tremendum ... 30 day MBG
5841 ❼ Moriarty's Revenge 1.03 . . . . . 32.
★ Nordic Software ... 30 day MBG
8258 Turbo Math Facts 1.1 . . . . . 25.
8257 ❼ PreSchool Pack - Color 1.0. . . . . 35.
2716 ❼ Word Search Deluxe 1.0. . . . . 35.
8260 ❼ Word Quest 1.0 . . . . . 30.
4087 ❼ Christmas Pack 1.0 . . . . . 30.
★ Penton Overseas ... 30 day MBG
❼ VocabuLearn/ce Levels I & II *(Span., Fren., Germ., Ital., Rus., Japan., & Heb.)* . . . *ea.* 35.
❼ VocabuLearn/ce Level III *(Span., Fren., Germ., Ital., Rus., & Japan.)* . . . . . *ea.* 35.



★ **Microcom ... 30 day MBG**
❼ *CarbonCopy Mac 2.0*–A best value in remote control. Direct another Mac's screen, keyboard, & mouse from anywhere. Single user for remote access (2 copies req.); unlimited users for networks.
7459 *(single)*. . . **$59.** 1556 *(unlimited)*. . . **$179.**

❼ PICTURE-IT! *(Spanish, French, German, & Italian)* . . . . . *ea.* 40.
★ Personal Training Sys. ... 60 day MBG
❼ Basic Macintosh *(modules 1-4)* . . . *ea.* 62.
❼ Converting 6.0 to 7.0 *(modules 1-2)* *ea.* 62.
❼ Excel 2.2, 3.0 *(modules 1-9)* . . . . . *ea.* 62.
❼ FileMaker Pro *(modules 1-5)* . . . . . *ea.* 62.
❼ FreeHand 3.0 *(modules 1-5)* . . . . . *ea.* 62.
❼ HyperCard 1.0, 2.0 *(modules 1-4)* . *ea.* 62.
❼ PageMaker 4.0 *(modules 1-6)* . . . . *ea.* 62.
❼ Persuasion 2.0 *(modules 1-4)* . . . . *ea.* 62.
❼ QuarkXPress 3.0 *(modules 1-4)* . . . *ea.* 62.
❼ System 7 *(new users) (modules 1-3)* *ea.* 62.
❼ Word 4.0 *(modules 1-4)* . . . . . *ea.* 62.
❼ Works 2.0 *(modules 1-4)* . . . . . *ea.* 62.
Postcraft International
6466 ❼ Citadel 1.21 . . . . . 26.
Sierra On-Line
9733 Hoyle's Book of Games II . . . . . 20.
7367 Space Quest III or 2522 IV. . . . . *ea.* 34.
2523 ❼ King's Quest V . . . . . 34.



★ **Argosy Software ... 30 day MBG**
7872 ❼ *Software Bridge/Mac 2.0.1*–Translate documents between over 30 Mac and PC word processors. Mount DOS disks. . . . **$99.**
2448 ❼ *RunPC/Network*–Connect to a PC and run DOS programs. Incl. Software Bridge . **279.**

370U

MMC

1-800/800-4444

MacConnection®

© Copyright 1991 PC Connection, Inc. MacConnection is a division and registered trademark of PC Connection, Inc., Marlow, NH. All other trademarks remain the property of their respective companies.

It's our latest Mac

Sir-Tech Software
8228 Wizardry II: Knight of Diamonds . . . . . $28.
8229 ❼ Bane of Cosmic Forge . . . . . 35.

★SoftStream ... 30 day MBG
4073 Colour Billiards . . . . . 38.
3501 ❼ Classic Trilogy *(Cribbage, Whist, Hearts)* 50.
3472 ❼ Family Cards *(Solitaire, Rummy, War)* . . 50.

Software Toolworks
4619 ❼ Mavis Beacon Typing 1.3 *(CP)* . . . . . 32.
1908 ❼ World Atlas 1.0 . . . . . 52.

★Spectrum Holobyte ... 30 day MBG
8180 ❼ Faces 1.0 . . . . . 14.
3464 ❼ Tetris 1.3 or 6112 ❼ Welltris 1.1 . . . . *ea.* 22.
3017 ❼ Wordtris 1.0 *(Jan. '92)*. . . . . 25.
3459 ❼ Falcon 2.2.1 or 8181 ❼ Vette 1.0 . . *ea.* 33.

★Spinnaker ... 30 day MBG
2328 Sargon IV 1.03 *(CP) (chess)* . . . . . 28.

★Strategic Studies ... 30 day MBG
8085 ❼ Panzer Battles 1.3.2 . . . . . 26.
2685 ❼ American Civil War 1.0 . . . . . 29.
3287 ❼ Warlords *(empires at war)* . . . . . 31.

StudyWare
❼ ACT, GMAT, GRE, or SAT Prep . . . . *ea.* 29.
8098 ❼ LSAT Prep for the Mac 3.7 . . . . . 35.

Terrace Software
8192 ❼ Mum's The Word 1.1A *(gardening)*. . . . 79.
9970 ❼ Mum's The Word Plus 1.01 *(color)* . . . 107.



★Berkeley Systems ... 30 day MBG
2198 ❼ *More After Dark (M.A.D.)*–25 new displays for After Dark. Featuring Mowin' Man, Tunnel, Crazy Kittens, Art Museum $23.
5737 ❼ *After Dark 2.0V*–Stops screen burn-in 28.
2196 ❼ *After Dark & M.A.D. Bundle* . . . . . 42.

★Toyogo ... 30 day MBG
7836 ❼ Nemesis Go Junior 5.0 . . . . . 19.
1993 ❼ Nemesis Scribbler 5.0 . . . . . 29.
7624 ❼ Nemesis Go Master 5.0 . . . . . 35.
2471 ❼ Nemesis Deluxe Toolkit 5.0 . . . . . 69.

★XOR ... 30 day MBG
6040 MacGolf Classic . . . . . 52.
3815 NFL Challenge 1.03 . . . . . 55.

COMMUNICATIONS
MODEMS, MAIL, NETWORKS

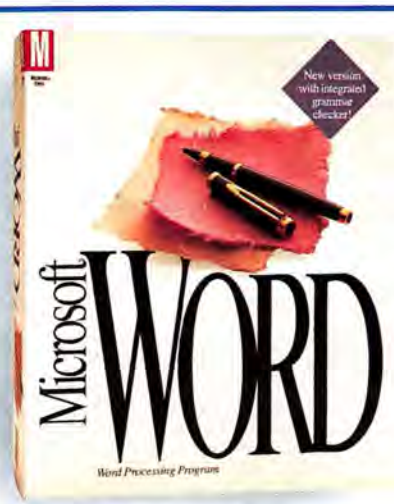
★Abaton ... 30 day MBG
6266 InterFax 24/96 Modem . . . . . 289.
2724 InterFax 24/96 with InterShare . . . . . 339.

★Applied Engineering ... 30 day MBG
8362 ❼ QuadraLink *(with AE Shadow)* . . . . . 205.

★Argosy Software ... 30 day MBG
7872 ❼ Software Bridge/Mac 2.0.1 . . . . . 99.
2447 ❼ RunPC/Remote . . . . . 139.
2448 ❼ RunPC/Network . . . . . 279.

★CE Software ... 60 day MBG
8066 ❼ QuickMail 2.5 *(5)* . . 249. 8067 *(10)* . . 375.

★CompuServe ... 60 day MBG
1676 ❼ Macintosh Membership Kit 1.5 . . . . . 25.



★Microsoft ... 30 day MBG
4902 ❼ *Word 5.0*–Includes an integrated grammar checker, Drag-and-Drop text, and a new Print Merge Helper. With the new Drag-and-Drop feature, users can move words, sentences, and even paragraphs by simply clicking highlighted text and dragging it to its new location. The Print Merge Helper is a graphical on-screen bar which guides users through a form letter step by step, making even the most complex or personalized form letter easy to create. Also takes advantage of System 7.0, including Balloon Help, TrueType fonts, Publish and Subscribe and support for Apple Events. Introducing plug-in modules, a new modular architecture . . . . . $299.

1673 ❼ CompuServe Navigator 3.04 . . . . . 49.
1674 ❼ Membership Kit/Navigator Bundle . . . . 72.

★DataViz ... 60 day MBG
1823 ❼ MacLink Plus/PC 6.0 . . . . . 129.
4842 ❼ MacLink Plus/Translators 6.0 . . . . . 109.

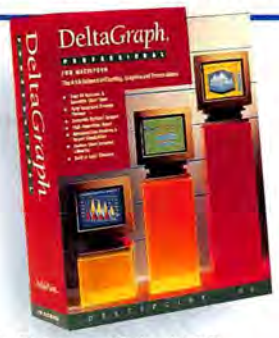
★Dayna ... 60 day MBG
DaynaPORT E: *(10BASE-T)* . . . . . *ea.* 209.
DaynaPORT E: SE, SE/30, II, IIsi, LC . . . 229.
8719 EtherPrint or 9888 *(10BASE-T)*. . . . . *ea.* 349.

Dove Computer
6758 ❼ DoveFax 2.0 . . 269. 3352 NuBus . . 329.
9634 ❼ DoveFax Plus . . 349. 4111 NuBus . . 399.
4110 ❼ DoveFax LAN . . 499. 4109 NuBus . . 529.

★Farallon Computing ... 30 day MBG
Full line available. Partial listing.
9805 ❼ Timbuktu 4.0.2 . . . . . 135.
4866 ❼ Timbuktu/Remote 3.0 . . . . . 135.
9961 PhoneNET Card PC . . . . . 209.
6273 PhoneNET StarConnector 10-Pack . . . . 129.
4869 PhoneNET Connector 10-Pk *(DIN8)* . . . . 198.
2206 PhoneNET StarController 300 . . . . . 899.
4802 PhoneNET StarController 357 . . . . . 1025.
4814 PhoneNET StarController 377 . . . . . 1299.

★Freesoft ... 60 day MBG
6115 ❼ White Knight 11 . . . . . 85.

★Global Village ... 30 day MBG
8946 ❼ TelePort A300 . . . . . 139.
8945 ❼ TelePort/FAX . . . . . 185.



★DeltaPoint ... 60 day MBG
3558 ❼ *DeltaGraph Professional*–Over 35 different chart types for business, presentation, scientific, statistics, and engineering in both 2D and 3D. Chart types include: line, pie, bar, column, scatter and others . . . . . $209.

Hayes
2300 ❼ Smartcom II for the Mac 3.3 . . . . . 84.
8614 Personal Modem 2400 Plus . . . . . 149.
3522 OPTIMA 96 *(w/free Smartcom EZ)* . . . . . 479.
7391 ULTRA 96 Modem . . . . . 669.

Insignia Solutions
7557 ❼ Access PC 1.1 . . . . . 60.
9726 ❼ Entry Level SoftPC 2.5 . . . . . 125.
4089 ❼ Universal SoftPC 2.5. . . . . 195.
3229 ❼ SoftAT 2.5. . . . . 299.
3441 ❼ SoftNode 1.0 . . 105. 3454 *(10 Pak)* . . 699.

Intel Corporation
5119 2400EX Modem . . 169. 6420 (MNP) . . 225.

★Microcom ... 30 day MBG
7459 ❼ CarbonCopy Mac 2.0 *(single)*. . . . . 59.
1556 ❼ CarbonCopy Mac 2.0 *(unlimited)* . . . . 179.
8027 MacModem V.32 . . . . . 689.

★Nuvotech ... 60 day MBG
3000 TurboNet ST *(DIN8)* . 29. 6751 *(12 Pak)* . 279.

★Orange Micro ... 30 day MBG
2394 ❼ Orange386 *(16 MHz)* . . . . . 1549.
2392 ❼ Orange386 *(20 MHz)* . . . . . 1799.

★Practical Peripherals ... 30 day MBG
8994 2400 V.42 bis Modem . . . . . 199.
7934 PM9600SA Modem 1.26 . . . . . 469.
9849 ❼ SmartPack 9600 *(with Smartcom II)* . . 529.

★Prometheus ... 30 day MBG
2590 ❼ ProModem 2400 Mini Plus . . . . . 129.
3832 ❼ ProModem Remote Plus . . . . . 249.
3232 ❼ ProModem 24/96 S/R Minifax Plus . . . 269.
8990 ❼ ProModem Ultima . . . . . 689.
3831 ❼ ProModem 9600M-EC . . . . . 499.

PSI Integration, Inc.
3143 COMstation 1 . . . 285. 3142 COM 2 . . . 379.

★Shiva ... 30 day MBG
3444 ❼ NetSerial 1.35. . . . . 275.
4347 NetBridge or 4942 ❼ TeleBridge . . . . . 409.

Sitka/TOPS
4188 Teleconnector *(DIN8)* . . 23. 2230 *(10)* . . 189.
6264 ❼ TOPS Network 3.1 . . . . . 187.

★Software Ventures ... 30 day MBG
3455 ❼ MicroPhone II 4.0 *(Dec. '91)* . . . . . 215.

★Synergy ... 30 day MBG
6618 ❼ VersaTerm 4.6 . 90. 6619 PRO 3.6 . 177.

★Tactic Software ... 30 day MBG
2996 ❼ Traffic Controller Personal 1.0 . . . . . 65.

★Technology Works ... 30 day MBG
1582 ❼ GraceLAN . . 295. 1584 Corporate . . 719.
1583 ❼ GraceLAN 50 Node Upgrade . . . . . 119.

★White Pine Software ... 30 day MBG
3539 ❼ Mac 220 . . . . . 89.
3535 ❼ Mac 240 . . 139. 3541 ❼ Mac 241 . . 199.
3544 ❼ Exodus . . . . . 199.

MacConnection®

TRUTH, JUSTICE, SOFTWARE, AND PERIPHERALS SINCE 1984.

ANOTHER INSPIRING BREAKTHROUGH FOR WEEKEND WARRIORS EVERYWHERE.

ORDER THIS WEEKEND

AND GET IT MONDAY, $3

OR ORDER FRIDAY, GET IT SATURDAY. (AVAILABLE IN MOST AREAS.)

1-800/800-4444

(Avail. most areas.)



★**Prometheus ... 30 day MBG**
8990 ❼ *ProModem Ultima*–14,400 bps (V.32bis) modem w/9600 bps S/R fax capability & all the software, including the new Maxfax 3.0! Supports V.42bis/MNP 5 data compression/error correction for up to 4 times the throughput! **$689.**

★**Micron ... 30 day MBG**

7149	❼Xceed IIci-128K Cache Card	239.
2262	Xceed Color 30 Card *(SE/30)*	279.
2260	Xceed Gray-Scale 30 Adapter Card	75.

Peripheral Land, Inc. (PLI)

8335	PLI TurboFloppy 1.4	309.
8327	PLI Infinity 40 Turbo *(removable)*	699.
9752	PLI Infinity 88 Turbo	849.
2644	Quantum 52 MB External	479.
8330	PLI 105 MB ... 619. 8329 200 MB	989.
2327	PLI 2GB DAT Drive	1939.
2325	PLI Infinity Optical Drive	3199.
1866	Quick SCSI Card *(requires cable)*	319.

PSI Integration, Inc.

3135	PSI MultiColor	99.
3137	Crunch-It! LC	113.
3141	Cache-It!	189.

Sigma Designs

1501	DoubleUp with ❼DiskDoubler 3.7	179.

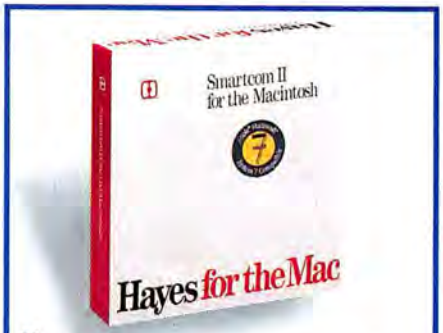
★**Total Systems ... 30 day MBG**

7817	16 MHz Mercury 030 *(for Mac SE)*	359.
7816	20 MHz Gemini 030	799.
	68882 Math Coprocessors	call

STORAGE MEDIA

★**3M ... 60 day MBG**

3943	DC2000 40 MB Data Cartridge	18.



Hayes
2300 ❼ *Smartcom II for the Mac 3.3*–Powerful communications software made easy. Features "Autopilots" for automatic dialing & log-on, programmable buttons, as well as support for MultiFinder & a variety of transer protocols **$84.**

★**Fuji ... 60 day MBG**

2214	3½" DS Disks *(10)* .. $9. 2242 *(50)* ..	$39.
2215	3½" HD Disks *(10)* ... 15. 2241 *(50)* ...	69.
4863	3½" HD Disks *(20)* w/storage case	29.
2243	3½" Color *(10)* DS ... 10. 2239 HD ...	18.
	Fuji ¼" Data Cartridges	call

★**Sony ... 60 day MBG**

3297	3½" DS Disks *(10)* .... 9. 6148 *(30)*	25.
3298	3½" HD Disks *(10)* ... 16. 6375 *(30)* ...	45.
1603	DG60M 16. 2520 DG90M	27.
	Sony ¼" Data Cartridges	call

★**SyQuest ... 60 day MBG**

6592	44 MB Cartridge ... 69. 9728 *(10)* ...	649.
3603	88 MB Cartridge ... 110. 3600 *(10)* ...	999.

ACCESSORIES
TONERS, CASES, DUST COVERS

Apple Computer

9773	StyleWriter Ink Cartridge	22.
7748	Personal LaserWriter Toner Cartridge	89.
1115	LaserWriter II Toner Cartridge	105.

★**Avery ... 60 day MBG**

7050	Avery 5660 *(1" x 2⅝" Clear Adrs.-Laser)*	32.
4811	Avery 5182 *(8½" x 11" Trans.-Laser)*	22.
5392	Avery 5196 *(3½" Disk Labels-Laser)*	29.
4807	Avery 5160 *(1" x 2⅝" Address-Laser)*	24.



★**Symantec ... 30 day MBG**
3598 ❼ *Norton Utilities for Mac & SAM Bundle*–Two essential utility packages at a new low price through 1/31/92! SAM provides complete virus protection; Norton Utilities gives you tools to keep your Mac running smoothly ... **$118.**

★**Basic Needs ... 60 day MBG**

	Full line of Dust Covers, Stands, etc.	call

CoStar

6091	The Organizer ... 189. 7453 Org. Jr. ...	82.

★**Curtis Manufacturing ... 30 day MBG**

8973	Apple Security Kit *(SL-2)*	22.

★**Goldstein & Blair ... 30 day MBG**

8374	❼The Macintosh Bible *(with disks)*	25.

IDG Books

2238	Macworld Guide to System 7 Book	19.

★**I/O Design ... 30 day MBG**

8812	Ultimate Classic Carrying Case	64.
3371	Ultimate PowerBook Carrying Case	75.
1941	Ultimate LC Carrying Case	95.

★**Kensington ... 30 day MBG**
Full line available. Partial listing.

4973	Power Tree 20	27.
2559	Apple Security Kit	33.
9303	Keyboard Shelf	39.
6763	Mac SE Anti-Glare Filter	52.
5064	Apple Color Monitor Polarizing Filter	63.

★**MacConnection ... 60 day MBG**

1505	Oak Disk Case *(36)* ... 21. 4623 *(90)* ...	32.

★**Moustrak ... 60 day MBG**

2694	Moustrak Pad *(7"x9")* . 8. 2692 *(9"x11")* .	9.
2693	Moustrak Pad Low Friction *(9"x11")*	10.



★**Fuji ... 60 day MBG**
4863 *Fuji 3½" HD Disks w/storage case*–Introducing a new 20-Pack of Fuji 3½" High Density Disks packed in a convenient, free disk storage case ..... **$29.**
Also available, Fuji ¼" Data Cartridges ... **call**

★**Targus ... 60 day MBG**

3617	Mac Classic/Plus/SE Case	59.
1305	Universal Notebook *(for PowerBooks)*	69.
4015	Mac SE & Ext. Kybd. Carry Case	75.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order (in the U.S.).
- No sales tax, except Ohio residents (please add applicable tax).
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped First Class Mail.
- International orders U.S. $250 minimum. Manufacturer support and upgrade eligibility may be limited outside the U.S.A.
- Upon receipt and approval, personal and company checks clear the same day for immediate shipment of your order.
- Corporate P.O.s accepted subject to credit approval.
- COD max. $1000. Cash or certified check.
- 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. All items subject to availability. Prices and promotions subject to change without notice.
- Our order lines are open continuously from 8:00 a.m. Monday until noon Sunday Eastern Time. You can call our business offices at 603/446-7711 Monday through Friday 9:00 a.m. to 5:30 p.m. Eastern Time.

SHIPPING

Continental US: Barring events beyond our control, all credit card orders phoned in weekdays by 3:15 a.m. Eastern Time will ship Airborne Express for delivery the next business day. Which means *same day* delivery for orders placed between midnight and 3:15 a.m. Eastern Time. (Some orders may ship by UPS Ground for next day delivery). Saturday delivery available to many areas upon request. Some areas require an additional day delivery. The total freight charge on any order placed with MacConnection is only $3.

Hawaii, Alaska, Canada, Puerto Rico and U.S. Virgin Islands: Call 800/800-4444 for information on shipping and charges.

All other areas: Call 603/446-7711 or FAX 603/446-7791 for information.

service unique!

★Zoom Telephonics ... 30 day MBG
1168 ❼MX2400R Modem *(w/❼QuickLink II)*. $69.
1176 ❼MX2400S Modem *(with SendFax 9600)* 79.
2310 ❼FX9624 Send/receive Fax/Modem . . . 119.
3576 ❼FX9624V Send/receive Fax/Modem . . 169.
1179 ❼V.42bis Modem *(with MacPack)* . . . . . 139.
2311 ❼V.32 Turbo Modem *(with MacPack)* . . . 419.

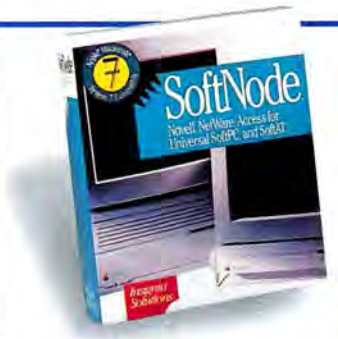
INPUT/OUTPUT
MONITORS, KEYBOARDS, MICE, PRINTERS & SCANNERS

★Abaton ... 30 day MBG
7432 ❼Scan 300/GS *(reqs. Scan Kit)* . . . . . 829.
2742 Scan 300/Color *(reqs. install. kit)* . . . . . 989.
1496 Int. Kit for 300/Color with Photoshop . . . 479.
1537 LaserScript LX . . . . . 1729.
★Advanced Gravis ... 30 day MBG
9963 ❼Gravis Mouse Stick. . . . . 59.
9964 ❼Gravis Super Mouse. . . . . 79.
American Power
5895 UPS 110SE . . 209. 6686 UPS 370ci . . 339.
3447 SurgeArrest Plus . . . . . 39.
Bravo Communications
9813 2 Position Switch Box *(for laser printers)* . . 95.
Caere
8124 ❼Typist Plus Graphics . . . . . 479.
4476 ❼OmniPage 3.0 . . . . . 479.
4930 OmniPage Professional *(Dec. '91)* . . . . . 669.



★Freesoft ... 60 day MBG
6115 ❼ *White Knight 11*–11 award winning communications program that supports XMODEM, YMODEM, ZMODEM, Kermit, and CompuServe Error Correcting protocols. Includes Okyto 1.0 and a free subscription to GEnie $85.

CoStar
1884 ❼LabelWriter II . . . . . 193.
1418 AddressWriter *(Jan. '92)*. . . . . 499.
❼Stingray ADB *(platinum or black)*. . ea. 89.
★Curtis Manufacturing ... 30 day MBG
8046 MVP Mouse *(MVP-1)* . . . . . 89.
★Datadesk ... 30 day MBG
9830 ❼MAC101E. 129. 2384 with QuickKeys. 149.
6901 Switchboard *(modular keyboard)* . . . . . 159.
★Everex ... 30 day MBG
1144 ❼Silhouette Trackball 1.0 *(ADB Macs)* . . . 78.
GDT Softworks
3429 ❼BetterWriters 1.0 *(software drivers)* . . . . 39.
6256 ❼PrintLink Collection/Serial 4.0.1 . . . . . 59.
8959 ❼PrintLink Collection/Parallel 4.0.1 . . . . 139.
6151 ❼JetLink Express/Serial 2.1 . . . . . 89.
Hewlett-Packard
6514 HP B&W DeskWriter *(w/cartridge)* . . . . . 479.
2964 HP Color DeskWriter C *(w/color cart.)*. . . 849.
9993 HP LaserJet IIIP *(with toner, reqs. kit)* . . 1149.
6754 HP LaserJet III *(with toner, reqs. kit)* . . . 1679.
3596 HP ScanJet IIc *(color)*. . . . . 1599.
★Kensington ... 30 day MBG
❼Turbo Mouse 3.0 *(Plus or ADB)* . . ea. 107.



Insignia Solutions
3441 ❼ *SoftNode 1.0*–Add SoftNode to SoftPC, and your Mac can not only run MS-DOS applications, it can also share programs over a Novell PC Network! Your next PC could be a Macintosh . . . . . $105.

Koala
2593 ❼MacVision Gray-Scale Digitizer 3.5. . . 259.
2879 ❼MacVision Color Digitizer 1.1 . . . . . 499.
★Logitech ... 30 day MBG
1671 ❼MouseMan. . . . . 77.
5082 ❼ScanMan Model 32 G-Scale Scan. . . . 299.
Mass Microsystems
Rival Monochrome Systems. . . . . *ea.* 1199.
★MicroSpeed ... 30 day MBG
2807 ❼MicroTRAC *(for SE & II family)*. . . . . 75.
6621 ❼MacTRAC ADB 2.0 *(SE & II family)* . . . . 75.
★Microtek ... 30 day MBG
1981 ❼MS-II OCR Scanner . . . . . 849.
1978 ❼Scanmaker 600GS . . . . . 1199.
1985 ❼Scanmaker 600ZS . . . . . 1599.
1982 ❼Scanmaker 1850S . . . . . 2299.
Monster Design Group
1486 MacSpeakers *(two, stereo)*. . . . . 169.
★Mouse Systems ... 30 day MBG
3005 ❼A^3 Trackball *(ADB)* . . . . . 79.
❼Little Mouse or ❼Little Mouse Plus *ea.* 74.
3355 ❼PageBrush/Color . . . . . 559.
★Nutmeg Systems ... 30 day MBG
❼19″ for SE, SE/30, II, IIsi. . . . . *ea.* 995.
❼19″ for GrayScale SE/30, II, IIsi . *ea.* 1295.
❼20″ Color System: SE/30, II, IIsi. *ea.* 2595.
★Orange Micro ... 30 day MBG
3036 ❼Grappler 2.0. . . . 92. 6229 ❼LX. . . . 111.



★Mouse Systems ... 30 day MBG
3005 ❼ *A^3 Trackball (ADB)*–Add 3-button functionality to your Mac. Redefines input devices with a 350 cpi, space saving & responsive trackball. A/UX, MacX, MacOs, Xwindows and System 7 compatible. . . . $79.

★Sophisticated Circuits ... 30 day MBG
8009 ❼PowerKey 1.01 . . . . . $64.
8008 ❼PowerKey Remote . . . . . 32.
★SuperMac Tech. ... 30 day MBG
4139 Monochrome Card *(NuBus only)* . . . . . 349.
4134 19″ Gray-Scale/Mono Display . . . . . 999.
1805 19″ SuperMatch Color Display. . . . . 1999.
Thunderware
4994 ❼LightningScan 400. . . . . 385.
3107 ❼LightningScan Pro 256. . . . . 519.

UPGRADES & DRIVES
MEMORY, ACCELERATORS

SIMMs ... with free video & manual
8316 1 MB SIMMs *(80ns, set of 2)*. . . . . 85.
9437 2 MB SIMMs for IIsi or II LC . . . . . 89.
★Applied Engineering ... 30 day MBG
1971 FastMath LC. . . . . 139.
8361 ❼1.44 MB High Density Drive . . . . . 229.
2532 QuickSilver Accelerator for the IIsi . . . . . 309.
3319 TransWarp SE with FPU *(25 MHz)*. . . . . 829.
3317 TransWarp SE with FPU *(40 MHz)*. . . . . 1499.
4146 TransWarp LC . . 829. 4147 with FPU . . 999.



Applied Engineering
2532 *QuickSilver Accelerator for the IIsi*–Gives your Mac IIsi speed and expandability with an SE/30 slot extender, a cache card and a 68882 math coprocessor chip on board. Comes with a 5 year warranty . . . . . $309.

Computer Care
BookView Imperial *(memory and video card for Apple's PowerBooks)* . . . . . call
BookRAM 2S, 4S, 6S, DRAM 4 . . . . . call
★Dayna ... 60 day MBG
8722 DaynaFile II 1.2 5¼″ Drive . . . . . 429.
★DayStar Digital ... 30 day MBG
Does not include optional math chip.
LT200 Connection *(PC)* . . 175. *(MC)* . . 279.
3584 DualPort IIsi with 20 MHz 68882. . . . . 165.
8556 ❼FastCache for Mac IIci . . . . . 265.
3401 ❼FastCache IIsi . 299. 3389 with FPU . 369.
PowerCache for SE/30, II, IIx, IIcx, IIci, IIsi, LC 40 MHz . . . . . 899. 50 MHz . . . . . 1399.
★FWB, Inc. ... 30 day MBG
2320 HammerDisk44 *(removable)* . . . . . 739.
2331 PocketHammer 50. . . . . 569.
2329 PH 100 . . . . 769. 2314 PH 200 . . . . 1199.
2341 Hammer Internal 50is. . . . . 389.
2333 100is . . . . . 599. 2334 200is . . . . . 999.
IOMEGA
2224 90 MB Transportable *(reqs. kit)*. . . . . 799.
2467 Gold Std. Rem. Disk *(90 MB, tri-pak)* . . . 439.
7789 ❼Mac 1B Interface . . . . . 39.
2466 ❼Mac 2B Interface *(w/Retrospect)* . . . . . 99.
Mass Microsystems
2605 DataPak 45. . 649. 2599 DataPak 88. . 899.
4103 DataPak MO . . . . . 2899.
Diamond 120-510 MB Hard Drives. . . . . call

NOTEBOOK SYSTEM

THE OUTBOUND

SMALLER. LIGHTER. FASTER. UPGRADEABLE!



"OUTBOUND OFFERS TOP-NOTCH PORTABLE MAC." *MacWEEK Magazine*

"Outbound's new Notebook System has the unique ability to grow along with your requirements — and your budget." *MacUser Magazine*

"Outbound's notebooks are solid machines and deserve serious consideration by anyone contemplating buying a Mac notebook." *Macworld Magazine*

"Innovative touches, a high degree of compatibility, and moderate pricing make the Outbound Notebooks strong competitors with Apple's portable Macs." *Portable Office Magazine*

The new Outbound™ Notebook System offers true notebook size and portability, plus the Macintosh® environment you know and love. Small enough to fit in most briefcases, all models measure 8.5 x 11 x 2.1 inches and weigh only 6.25 pounds.

Mac-Compatible. The Outbound Notebook you choose is ready for action immediately because the Macintosh ROM is already installed. This means the thousands of Macintosh software applications available are completely compatible.

Upgradeable. You'll appreciate the benefits of the easily upgradeable microprocessor boards, hard disk drives and system memory. This value-added bonus lets you expand the Outbound's capabilities as your computing needs grow. There's no need to worry about early obsolescence.



Cost-effective upgrades are quick and simple thanks to the Outbound's unique modular design.

Power and Performance. If speed is important, look no further. Running at up to 33 MHz, the Outbounds are the fastest Mac®-compatible portables around. And now Outbound offers up to 14 MB of RAM. Designed for your comfort, each Outbound Notebook boasts a full-size, silent keyboard. In tight quarters, use the keyboard mounted TrackBar™ to point and click. Or, add a mouse or other ADB pointing device. The backlit, LCD screen is large and easy to read, and provides 17% more displayable area than the Apple® PowerBook™ screens. Plus, all Outbound Notebooks have a versatile, built-in floppy disk drive so you can work with high and low density Macintosh and MS-DOS® diskettes.

Service and Support. Your Outbound Notebook is backed by a one-year warranty. Should you need technical assistance, simply dial our Customer Service line — it's just a toll-free call away.

NEW LO PRICES

Easy Decision. Want a smaller, lighter, faster, Mac-compatible portable computer? One that's so upgradeable it will last many years? The Outbound Notebooks give you all this and more. Just check the comparison chart below and see for yourself who offers more features and flexibility, then call us today.

FEDERAL EXPRESS · VISA · MasterCard

1.800.444.4607

CIRCLE 79 ON READER SERVICE CARD.

COMPARE FOR YOURSELF	Outbound 2000	PowerBook 100	Outbound 2030E	PowerBook 140	Outbound 2030S	PowerBook 170
Processor/Speed	68000/20 MHz	68000/16 MHz	68030/25 MHz	68030/16 MHz	68030/33 MHz	68030/25 MHz
RAM	2 to 4 MB	2 to 8 MB	4 to 14 MB	2 to 8 MB	4 to 14 MB	4 to 8 MB
Upgradeable CPU & Hard Disk	Yes	No	Yes	No	Yes	No
Silicon Disk Memory (RAM)	0 to 12 MB	0 to 6 MB	0 to 60 MB	0 to 6 MB	0 to 60 MB	0 to 6 MB
Hard Disk Drive	40, 80 or 120 MB	20 MB	40, 80 or 120 MB	20 or 40 MB	40, 80 or 120 MB	40 MB
Math Coprocessor	None	None	Optional 68881	None	Optional 68881	68882
Internal Floppy Drive	1.4 MB SuperDrive*	None	1.4 MB SuperDrive*	1.4 MB SuperDrive™	1.4 MB SuperDrive*	1.4 MB SuperDrive
Virtual Memory Capability	None	None	None	Standard	Standard	Standard
Display	10" Dia., 640 x 480	9" Dia., 640 x 400	10" Dia., 640 x 480	10" Dia., 640 x 400	10" Dia., 640 x 480	10" Dia., 640 x 400

* The 1.4 MB Floppy Disk Drive is SuperDrive-equivalent. Technical specifications subject to change without notice. The Outbound name, logo and TrackBar are trademarks of Outbound Systems, Inc. Apple, Macintosh and Mac are registered trademarks of Apple Computer, Inc. PowerBook and Apple SuperDrive are trademarks of Apple Computer, Inc. All other brand and product names mentioned are trademarks or registered trademarks of their respective holders.

OUTBOUND™

Outbound Systems, Inc., 4840 Pearl East Cr., Boulder, Colorado
Phone: 303.786.9200 Fax: 303.786.8611

See us at Macworld booth 51.

QUICK CLICKS



FrameMaker 3.0

4½

FrameMaker, the workhorse among Mac page-layout programs, just got more muscle with the release of version 3.0. The changes and additions to the new version enhance FrameMaker's already enviable position as the hands-down favorite for laying out lengthy technical documents with the Mac.

FrameMaker 2.1 was reviewed in November '90 (page 54). This multitalented publishing program combines word processing, page layout, graphics, and equation editing.

New to version 3.0 is an elegantly designed, integrated set of table-creation tools that's similar in operation to Microsoft Word's. You simply choose the Insert Table command and specify rows, columns, and any table format you have defined and saved to disk (including custom rules, cell margins, and shading). You then begin entering data or text into the resulting table. The program lets you define table titles, headers, and footers.

FrameMaker tables can include text and graphics rotated at 90-degree increments. One slightly irritating convention is that you must unrotate the cells in order to edit the text. You can also rotate the entire table. All of FrameMaker's other powerful features, such as variables, autonumbering flows, and footnotes, are available for use in tables.

FrameMaker's flexible table editor lets you merge columns, scale them to fit specific widths, and even copy and paste column widths. In addition, you have full control over page breaks in multipage tables.

Tables also give you a workaround for one of FrameMaker's failings — namely, the program's inability to specify the distance before or after graphics-anchored frames. Without this feature, you couldn't position the frames consistently (always 12 points after a paragraph, for example). However, because you can position tables this way, you can simply add a graphics-anchored frame to a one-cell table and then specify the desired offset. You can even use the table title as a caption for the graphic by moving the title to a position under the table. This nontabular use of tables is discussed, albeit inadequately, in FrameMaker's *New Features* manual.

One disappointment is the lack of an easy way to sort rows in FrameMaker tables. You must either convert a table into text, generate an alphabetical list, and then convert the list back into a table or enter your table data first as tabbed text, use the Generate command to sort it, and then convert it into a table.

FrameMaker 3.0's other major enhancement is conditional text, a feature that lets you create multiple variations of documents, such as advertisements and product descriptions, using one base document file. Material that every variation has in common appears normally, whereas text or paragraphs unique to variations appear with special user-defined formatting tags, such as strike-throughs. In order to view or print out a particular version of the file, you can specify which tags are to be visible or hidden.

The new version, which is System 7-compatible, also includes some minor interface tweaks, faster text display, and support for DCS (Desktop Color Separation) graphics. Outputting color separations, however, remains a rather clumsy process.

Although the manuals have been streamlined, discussion of the new features in version 3.0 is not integrated into the main documentation but appears in a separate *New Features* manual.

The additions to FrameMaker make it an even more powerful publishing package. Overall, for long-document processing and page layout, FrameMaker has no peer in the Macintosh world.

Frame Technology, 1010 Rincon Circle, San Jose, CA 95131; (408) 433-3311. Version 3.0. $795.

— Gregory Wasson



Spaceship Warlock

4½

Unlike most adventure games, Spaceship Warlock is not about solving puzzles or perfecting hand/eye coordination. Warlock is pure exploration that rewards players for using good old common sense. And Warlock offers plenty to explore: The game's artwork weighs in at 128 megabytes' worth of data that spans a CD-ROM. The result is entertainment that's guaranteed to keep even the most fanatical gamers intrigued for hours at a stretch.

Spaceship Warlock is a joint creation of Mike Saenz and Joe Sparks. Saenz is well known for his work on *Shatter* and *Iron-Man*, two comic books created entirely on the Macintosh. If you're familiar with Saenz's comic books, then you already have a feel for Warlock's futuristic graphics. The artwork, which incorporates 2-D and 3-D images plus animation, is truly phenomenal.

Players begin their space adventure in the unlikeliest of places: getting mugged by a pop-eyed green alien in the back alley of a city on the dreary planet of Stanbul. Next, after you've successfully KO'd the slippery mugger, you collect a reward from the police for capturing your assailant, a wanted criminal. The reward money is your ticket to escape off-world, far from grimy, drab Stanbul. From there, you're off, traveling through space on a luxury cruiser, getting hijacked by space pirates, and battling to liberate mankind from the evil Kroll.

Despite its brawls and battles, Warlock is no shoot-'em-up game. It's an animated space-age world that makes you an inhabitant. What's more, Warlock offers fast action that doesn't bog you down with heavy text-input requirements. Point-and-click is all there is to navigating. To move forward, you simply click in the middle of the screen; to move right or left, click on the corresponding sides.

In addition to its outstanding graphics, another of Warlock's strengths is good use of sound. Characters actually speak to you, and the background noises and music set definite moods, from the sinister to the suspenseful. It's readily apparent that a great deal of work and care went into this game.

Spaceship Warlock is suitable for all ages. Although Reactor's uncharted world may not be quite as thrilling as the one in the movie *BladeRunner*, the game draws you in and makes you part of the action, an experience no movie can match.

Reactor, Inc., 3110 N. Sheffield Avenue, Chicago, IL 60657; (312) 528-1600. Version 1.0. $95.

— Stephan Somogyi



Cubase

4

Cubase is a double import, from Germany and from the Atari ST, that can hold its own among such established Macintosh sequencers as Opcode's Vision and Passport's Master Tracks Pro.

Cubase is designed to let you edit while

Raise Your Standards!

NOW OFFERING A 5 YEAR WARRANTY ON CARTRIDGES • PLI FIVE YEAR CARTRIDGE WARRANTY • PLI FIVE YEAR CARTRIDGE WARRANTY •

Infinity 88 Turbo Removable Cartridge Drive

For years now, 45MB cartridge drives have been the de-facto standard removable media drive. Many hundreds of thousands of these drives are in use throughout the world. And PLI has shipped more of these drives than any other integrator.

But today, a 45MB cartridge just isn't big enough. For that reason, among others, a new standard is being established — 88MB cartridges. And once again, PLI is setting the standard. That standard is the Infinity 88 Turbo.

More Capacity

The demands for high-capacity data storage have increased steadily. Power users need it for virtual memory. Artists and publishers need it for graphics and typefaces. Everybody needs it for System 7. Today, nearly every Macintosh user needs 80MB or more.

Higher Reliability

Over the years, drive technology has improved. Reliability is much better. The Infinity 88 Turbo offers a 60,000 hour MTBF rating, twice that of the smaller drives. To emphasize that increased reliability, the drives come with a two-year warranty.

Faster Performance

The new 88MB drives are faster than the 45's. They support both synchronous and asynchronous data transfer and do so at higher rates of speed. A look-ahead cache has been added to improve access times as well.

Save Money

And there's more good news. The Infinity 88 Turbo drives are faster, bigger and more reliable than earlier drives, but cost only a few dollars more. In fact, the cost-per-megabyte is less for the 88MB drives!

Buy from the World Leader

PLI has been at the forefront of removable media technology for five years and is well known for the high quality of its products. Our software is known for its speed and reliability. PLI's award-winning drive subsystems are built from the best components available, tested thoroughly (including a burn-in period of at least 24 hours) and certified by UL and FCC.



Standardize

Personal computer users all over the world are moving up to the 88MB cartridges. They are the new standard in removable media. And in order to use the 88MB cartridges, you need an 88MB drive like the Infinity 88 Turbo. Don't get left behind. Call PLI today.

SyQuest

The media included with the drive has a five-year warranty. Additional media may be purchased with either one or five year warranties. All company names and product names are the property of their respective holders.



The Most Trusted Name in Storage Solutions.

Peripheral Land Incorporated
47421 Bayside Parkway • Fremont, California 94538
510-657-2211 or 800-288-8754

CIRCLE 180 ON READER SERVICE CARD.

PLI

a sequence is playing, without compromising the playback tempo. You set up tracks in Cubase's Arrange window, where you enter track information on the left and get a graphic overview of the song on the right. Each time you record, you lay down parts that appear as horizontal bars. To arrange and edit your piece, you can move, copy, stack, and otherwise manipulate the parts in any way. You can even make ghost copies of parts that you can move to other tracks and play as other instruments. Changes you make to the originals automatically appear in the ghost copies.

Cubase supplies four windows for editing at the MIDI-event level. Each presents a view of your data that's maximized for particular kinds of performances and editing. For example, the Key window displays a piano-roll grid above a controller pane and the Drum window uses diamond-shaped notes that make it easy to create and edit drum tracks.

A tear-off Tool palette lets you draw notes or controller curves as well as click and drag events to change pitch, attack time, duration, and curve parameters. You can also "kick" an existing event earlier or later and add a string of notes with one click and drag of the mouse.

In addition to letting you select any number of adjoining or discontiguous tracks, parts, notes, or other MIDI events, Cubase provides a Logical Editor with a powerful set of Boolean selection and editing criteria, so you can fine-tune your compositions in a variety of ways.

Cubase comes with several standard quantizing schemes, but it also offers excellent and unique Match and Groove quantizing tools, which are real time-savers. The Match tool lets you quantize any selection according to the rhythmic character of another selection, and the Groove tool lets you create a rhythmic template in a specialized dialog box and then quantize to it. Both provide terrific ways to incorporate the "feel" you want into a piece or to tighten up performances without making them stiff.

Not only is Cubase compatible with MIDI Manager but it now also comes with a driver for the SampleCell, Digidesign's sampler-on-a-NuBus-card. With the driver, Cubase can address SampleCell cards on 32 MIDI channels and still see 16 channels each on the modem and printer ports. The Cubase/SampleCell combination goes a long way toward turning your Mac into a small stand-alone production studio.

Unfortunately, Cubase is copy-protected. Even more unfortunate is its timing resolution of only 192 ticks per quarter note. Although this is poorer resolution than that offered by some other sequencers, Cubase's other features make it a worthy competitor.

Steinberg/Jones, 17700 Raymer Street #1001, Northridge, CA 91325; (818) 993-4091. Version 1.8. $495.

— Tim Tully



QuickTools

QuickTools is a well-programmed collection of eight utilities that's a testament to design simplicity. Although none of the devices is on a par with the superlative functionality of Now Utilities' Super Boomerang or NowMenus, as a whole, the package provides an easy way to beef up your productivity on the Mac.

QuickTools overlaps many popular commercial and shareware products. However, because its eight utilities were developed by the same person (Andrew Welch, author of many popular shareware and commercial programs), they share a consistent look-and-feel — once you've learned one, you've learned them all. Each operates as a System 7-compatible control-panel.

PowerStrip is a utility that provides a NeXT-like file-launching palette to which you can assign any application or Apple-menu item, thereby eliminating the hassle of navigating through layers of folders. Assignment of programs to the palette tiles is simple and direct, and each tile sports the icon of a selected application. Apple-menu items are depicted with a System 6-style DA suitcase. You can assign documents to each application (as you can with On Cue and DiskTop's DT Launch), so you can open them from PowerStrip as well as designate files that are to be opened automatically when you launch an application.

Of all the QuickTools utilities, Dialog Power! comes the closest to being a must-have. It lets you activate any dialog-box option from your keyboard. Required keys are clearly indicated by an underlined letter within each button (for example, the *S* in the Save button).

Sunset is a modular screen saver like Pyro! and After Dark, albeit without as much graphics pizzazz. QuickTools supplies 32 modules that contain various

The Perfect Security Blanket



NightWatch II

NightWatch II covers you with a new blanket of protection. Yes, the industry's most effective hard disk security has gotten even better. With three state-of-the-art protection options and master key capability, we've really caught the competition sucking their thumbs.

With ironclad hard disk protection while you're away, and hot spot screen security while you work, you'll feel safe again.

NightWatch II is easy to use and won't harm your data . . . yet it's ruthless against snoops and intruders. So, whether you need absolute security, write-protection, or a myriad of automatic timed-lock options, rely on NightWatch II. It's System 7.0 - compatible, great for site licenses, and soft on your budget. Nothing else can match it. With protection like this, you'll sleep like a baby.

Kent·Marsh Ltd.
The Macintosh® Security Experts

Kent Marsh Building, 3260 Sul Ross, Houston, TX 77098
Sales: (800) 325-3587 Fax (713) 522-8965
Main: (713) 522-LOCK

CIRCLE 37 ON READER SERVICE CARD.

BACKUP DESIGNED WITH RAMONA IN MIND.

Ramona's our mother. But even she won't use our software unless it's fast and simple. So we designed DiskFit Pro to back up a Macintosh hard disk with just a few mouse clicks.

The first time you use it, DiskFit Pro creates a SmartSet™—an exact copy of your hard disk. The next time you use it, DiskFit Pro copies and updates only the latest files, keeping your SmartSet clean and tidy. DiskFit Pro even prompts you to back up—just like a mom.

If you're too busy to spend hours learning a backup program, we think you'll like DiskFit Pro as much as Ramona does.

DISKFIT PRO™

To Go Forward, You Must Backup

AVAILABLE AT RETAILERS AND MAIL ORDER OUTLETS WORLDWIDE

Dantz

DANTZ DEVELOPMENT CORPORATION

1400 Shattuck Avenue, Suite 1, Berkeley, CA 94709 · 510/849-0293 · 510/849-1708 FAX

CIRCLE 27 ON READER SERVICE CARD.

MacTable®

"The only workcenter I'd ever consider for my Mac."
Larry Pina
The Macintosh Bible



MacUser, June '90

"MacTable is the best designed and built and the best value. You win on all counts."
Steven Bobker
MacUser

Designed for space, comfort and productivity

ScanCo
P.O. Box 3217
Redmond WA 98073-3217

Call for Free Catalogue and Computer Ergonomic Checklist
800-722-6263
or 206-481-5434 in WA state

MacTable design is patent pending. MacTable is a registered trademark of Scandinavian Computer Furniture, Inc.

geometric patterns, pictures, and animations. If you send in your registration card, you can acquire even more.

Snipper is a cleanly designed and well-implemented screen-capture/print utility. Its small file size and minimal memory requirements make it an attractive alternative to more-memory-intensive commercial products such as Capture and Exposure. User-defined keys let you save all or selected parts of a screen to the Clipboard or the Scrapbook or in PICT format. You can also send images directly to a printer.

Barricade is QuickTools' quick-and-dirty lockout program. By pressing user-defined hot keys, you can assign one of five text or graphic messages that will flash on-screen until someone enters the correct password. Barricade continues to work even after someone has rebooted your Mac.

Instant Menus brings the menu bar to wherever your cursor is, an especially useful feature for large-monitor users. By pressing user-defined keys while holding down your mouse button, you get a pop-up list of all the items in your menu bar that can be readily accessed by your cursor, so you don't have to make the long trip across-screen to the main menu bar.

Work Saver is a safety net that lets you set applications to save documents automatically at user-defined intervals. If you don't like to be interrupted while you type, you can set Work Saver to go about its business only after so many minutes of inactivity.

Finally, QuickTools' Functionality utility activates the Undo, Cut, Copy, and Paste function keys (F1 to F4) on your extended keyboard.

The QuickTools package includes the QuickToolbox control panel, which lets you assign more memory to your system heap. Too little system-heap space may cause serious crashes if you use a lot of extensions and control panels. Installing all eight QuickTools utilities requires 177K of RAM.

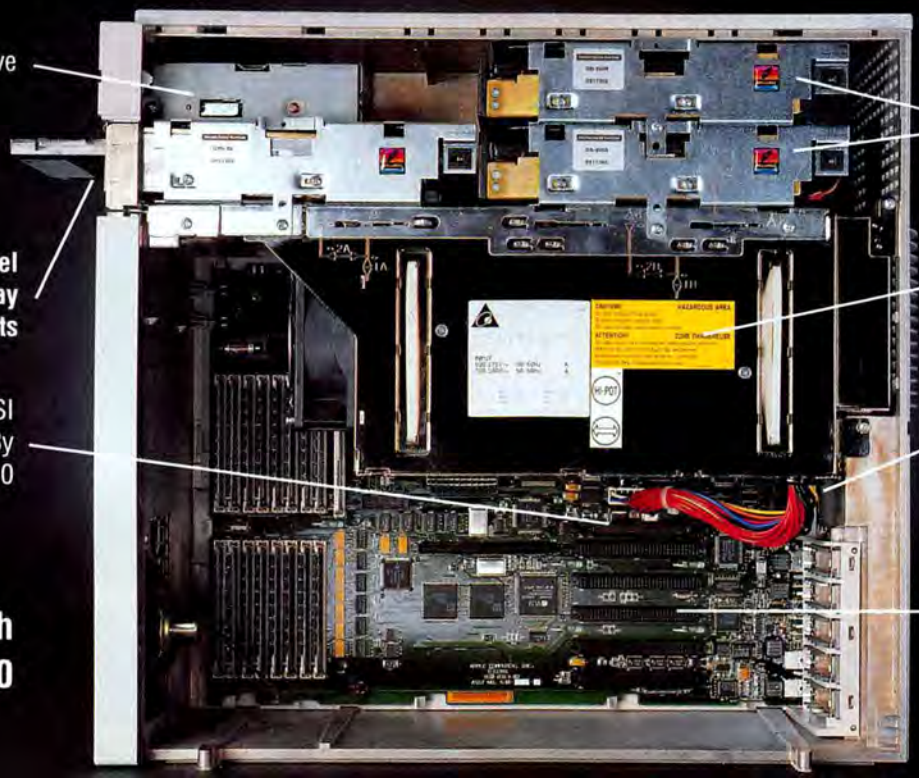
It's a good bet that most users won't want to install every one of the QuickTools utilities. If you're new to the Mac and starting your utility collection, however, QuickTools is a good place to begin. It's so easy to use that you may not even have to crack the 80-page manual.

Advanced Software, Inc., 1095 E. Duane Avenue, Suite 103, Sunnyvale, CA 94086; (408) 733-0745. Version 1.01. $79.95.

— Tom Petaccia

Disk Array•040!

See Breakthrough Sustained Transfers of 7.0 MB/sec at MacWorld – Booth #1031



High Performance Storage For The Macintosh Quadra 900
MicroNet's Raven•040 Internal Disk Arrays

MicroNet's RAVEN brought unbeatable disk array performance to the Macintosh II. Now there's a more powerful Macintosh. The Quadra 900! It's based on 68040 technology and it's fast. The performance of the Quadra can be greatly increased by use of a MicroNet RAVEN·040 disk array.

The RAVEN·040 is a two-drive array that employs FAST·SCSI-2 technology. With data bursts as fast as 10 MBytes/sec, and average access times as low as 7 ms, these new systems are four times faster than the standard 160 MByte drive. They install internally and range in capacity from 624 to 2,020 MBytes.

The RAVEN·040 is expressly designed to use the built-in SCSI-2 ports of the Quadra 900. The PDS and all five NuBus slots remain open for other use.

The RAVEN·040's built-in performance makes it ideal for graphics, animation, pre-press, digital sound, multimedia, CAD/CAM, and file-servers, where speed and capacity are paramount.

The RAVEN·040 is the ultimate data storage system for Quadra 900.

No one can match the power of our RAVEN·040 storage solutions. Call our sales department today. We're ready to talk. 1-714-837-6033.

MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: MICRONET.SLS • Compuserve: 76004,1611

RAVEN•040 is a trademark of MicroNet Technology, Inc. All other trademarks are the property of their respective owners.

CIRCLE 139 ON READER SERVICE CARD.



OCEANOGRAPHER HANS JANNASCH,
LIKE 9 OUT OF 10 MAC® SPREADSHEET USERS,
CHOSE MICROSOFT EXCEL.

©1991 MICROSOFT CORPORATION. ALL RIGHTS RESERVED. PRINTED IN THE USA. CUSTOMERS INSIDE THE 50 UNITED STATES, CALL (800) 541-1261, DEPT. X37; OUTSIDE THE 50 UNITED STATES, CALL (206) 936-8661. CUSTOMERS

Dr. Jannasch says, "Plankton's connected to the little fish. Little fish are connected to the big fish. And everything's connected by Microsoft Excel."

He's simplifying, of course.

But that comes naturally to Microsoft® Excel users. Because whether you're working on chemical analysis or cost analysis, Microsoft Excel can simplify just about anything.

As proof we offer the Toolbar.™ It turns multi-step jobs into one-button solutions, making everyday tasks that much easier. For example, to add a range of numbers just hit Autosum.™ And it's done.



If you're in the middle of a jumbo spreadsheet, you can use outlining to collapse your worksheet so you can view or print only what you need. Nothing more. Nothing less.

If you're working on two worksheets, or 22, or even 222, don't worry. You can easily consolidate them all into one.

And after you've found The Answer, you can communicate it beautifully. For instance, you can use any of Microsoft Excel's 68 charts. To add depth, choose from the 28 3-D versions—any of which will make you look 2X as good.

Now you're thinking, "How slick. How smart. How did they ever come up with all that?" Well, we had help. From users like Hans Jannasch of the Monterey Bay Aquarium Research Institute. And users like you. People whose input has helped make Microsoft Excel the spreadsheet standard since 1985.

For more information, just give us a call at (800) 541-1261. Ask for Department X37. And connect yourself with Microsoft Excel.

Microsoft

IN CANADA, CALL (800) 563-9048. MICROSOFT IS A REGISTERED TRADEMARK AND AUTOSUM AND TOOLBAR ARE TRADEMARKS OF MICROSOFT CORPORATION. MAC IS A REGISTERED TRADEMARK OF APPLE COMPUTER, INC.

Everyday Databases

A flat-file database program is more than enough for most users, but buying a bargain isn't a good idea.

BY SHARON ZARDETTO AKER

Flat-file database programs are a lot like alligators—they've survived through the years because they fit their niche perfectly. Flat-file database programs have been around almost from the beginning of Mac history, and even today, eight years later, a basic flat-file database program can satisfy many Mac users' database needs. Unlike relational databases, flat-file databases deal with only one collection of information at a time, so related files, such as a database of company names and addresses and another of product names, can't share information dynamically, although there are workarounds.

We looked at four flat-file database managers: RecordHolder Plus, DAtabase, Panorama II, and FileMaker Pro. Two cost less than $150, and two are in the $300-to-$400 range. A fifth program, Filevision IV, takes such a different approach to data storage and retrieval that we've treated it separately (see the "Filevision IV: A Visual Database Program" sidebar). We expected that the low-end products would meet low-end needs, offering good but limited speed and functionality. We found that with the high-end products, you get what you pay for but that with the low-end ones, you don't.



PHOTOGRAPHY: FRED STIMSON

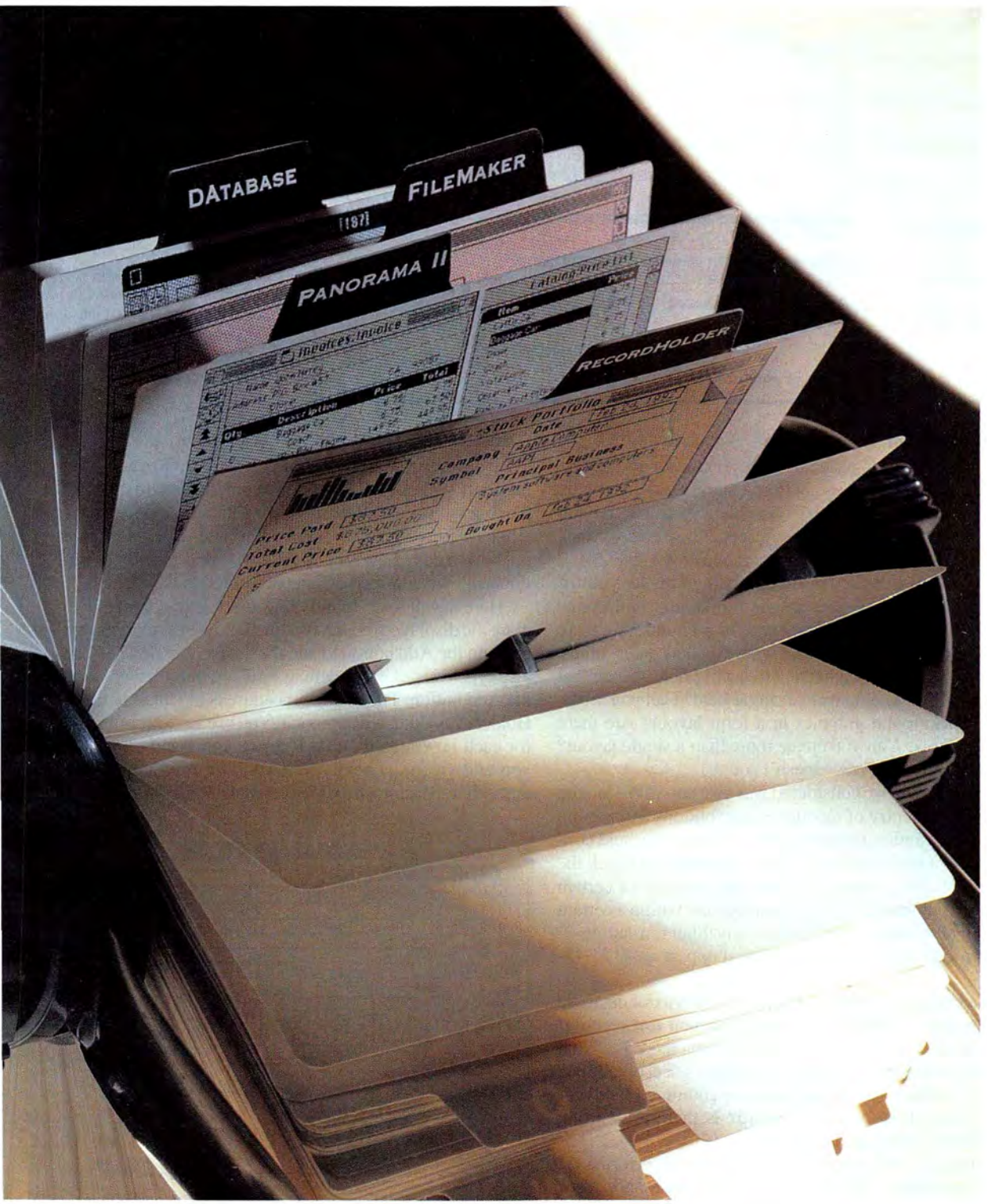

DATABASE
FILEMAKER
PANORAMA II
RECORDHOLDER
Invoices: Invoice
Stock Portfolio
Company
Symbol
Price Paid
Total Cost
Current Price
Bought On



Figure 1: A flat-file-database program is sufficient for most database uses, but our tests showed that looking for a bargain isn't a good idea. The two bargain-priced packages, DAtabase and RecordHolder Plus, couldn't perform many of the basic manipulation and retrieval operations we tested, and they were both too slow to be competitive. Even though the same 2,000-record file was used for these tests, the file size varied wildly among the programs. Being RAM-based, Panorama II streaked past the other packages, but FileMaker Pro's capabilities made it the overall winner.

The Evaluation

Each of the four programs was evaluated for power, flexibility, and ease of use in four general areas: setting up the database and entering, manipulating, and retrieving information. We also noted any special features (or lack thereof) that make the programs unique (see Table 2).

For setup, we looked at the way programs let you (or *make* you) define fields, assign formatting, and create forms for on-screen data entry and for printouts. Are there special fields for specific data types, such as dates, times, and graphics? Can you make a repeating field — one that holds multiple data items in a single field? Can you incorporate background graphics in a form layout? Are there drawing tools? Can you create more than a single layout? (An alternative list view doesn't count.)

The next thing we considered was data entry. We looked for automatic entry of repetitive data: buttons and pop-up menus, date and/or time stamping, and copying field contents from a previous record. Does the program check the validity of data, making sure that the contents of certain fields are numbers or dates or that they are within a certain range of allowable values? Is there any input formatting — can you type 123456789 and have it appear as #123-45-6789?

Data manipulation and retrieval are the crux of database management. To how many levels can you sort records? Can you work with a subgroup of existing records? What kind of criteria can you use for a search or select operation? Is there a wide range of functions for computed fields for doing calculations within a record? Is there a reporting function for calculations across records?

We used a 2,000-record file to compare the performance of the programs. We ran a series of benchmark tests, including a find and a variety of searches and sorts, under System 7 on a Mac IIci (see Figure 1).

RecordHolder Plus

Reviewers, like other users, tend to jump into a new Mac program without reading the documentation first. After playing with one of RecordHolder Plus' sample files for a while (see Figure 2), we spent 15 minutes trying to figure out how to add a new record. After 10 minutes with the online help, we admitted defeat and turned to the manual.

Here's what we found: Use the Clear command to erase the displayed record, type in the new information, and click on the Add button to add the data to the file. You can also type over existing data in a record and then click on the Add button. The whole procedure is based on RecordHolder Plus' outdated approach: You use an Add command for each new record and a Replace command each time you edit a record. Luckily, you won't find this approach in any other Macintosh database application: It's clunky,

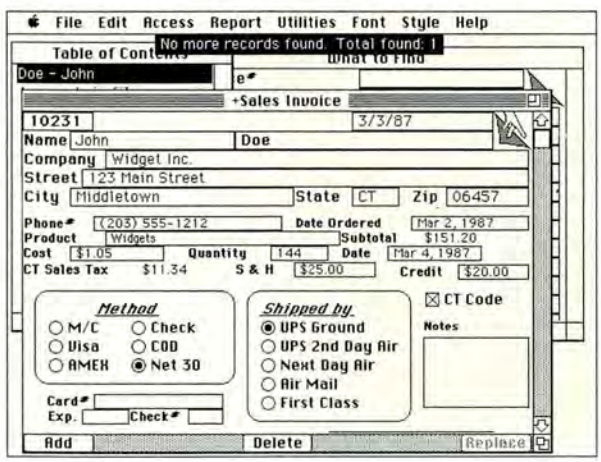


Figure 2: This unattractive window from one of RecordHolder Plus' sample files is indicative of the program's design. The reversed-out text at the top of the screen appears instead of a dialog box.

Filevision IV: A Visual Database Program

Picture this: You're an office manager and keep track of everything from parking-lot assignments and office space to computer hardware and personnel records. There's a diagram on your Mac's screen. You click on a parking lot and find out its capacity. You click on a parking space and find out whom it's been assigned to; while you're at it, you get a printout of assigned spaces and general-access slots. Then you click on the office building and get the floor plan. Click on one of the rooms, and you see its specs: square footage, windows, views, and so on. Click on the computer icon in the room, and you get information about the network node located there; while you're in that window, you create a report that lists the hardware for each node in that zone so you can see what's due to be upgraded.

You can use a traditional flat-file database program to store this information in four files — one each for parking lots, offices, computer equipment, and personnel. Of course, you would have to access the information in the usual textual way, and you'd be hard-pressed to see the relationships among the files. Or you can store it all in Filevision IV.

With Filevision IV, you create layers of data objects so you can store related — but disparate — types of data in one place. (It's not a relational database, though — information is not shared among the files.) You can perform standard database procedures — sort, search, select, and create reports — within each category of information.



Figure A: In this example, Filevision IV has highlighted all the states with populations of less than one million. Double-clicking on a state such as Nevada opens its window. Similar information is stored for every state.

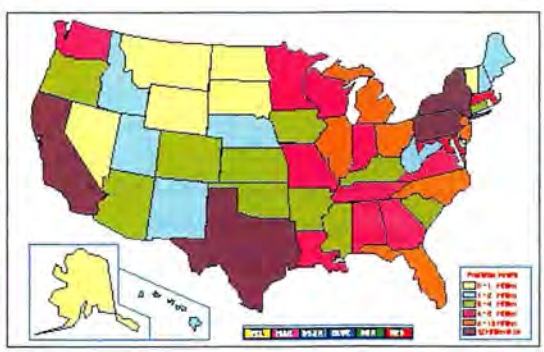


Figure B: By using the Shade command after you've selected each group of states (population less than one million, between one and two million, and so on), you get a chart with this information.

But Filevision IV is more than pretty pictures on top of a database. Besides serving as a convenient, intuitive gateway to stored data, the graphics display information. Anyone who's worked with charts created from a spreadsheet program understands how graphical displays of data are often easier to grasp than is text. If you're using an office-manager database, for instance, you can simply ask the program to outline any office that has less than 200 square feet of space or any computer that has less than 80 megabytes of hard-disk storage. Once you've highlighted a group of "data objects," you can apply shading to them; by highlighting and shading groups that match certain criteria, you can create an overall picture of your data.

Filevision IV is based on a unique database concept that provides for unique database needs. Even if a more traditional database manager is your workhorse, Filevision IV may be precisely the supplemental tool you need for special projects. You should plan to spend lots of time learning it, however, and you need some drawing skills (all the drawing tools are built in). Setting up a database isn't a snap, but the results can be worth it.

TSP Software, 4790 Irvine Blvd., Suite 105-294, Irvine CA 92720; (714) 731-1368.

time-consuming, and totally counterintuitive.

Some of RecordHolder Plus' other interface flaws include a poor substitute for a dialog box — a few reversed-out words appear at the top of the screen. Pressing Return to acknowledge the message (a Mac user's instinctive response) moves you to the next field, because there's no interaction with these "dialogs." The program is also plagued by a variety of minor interface transgressions such as buttons that remain active even though their operations are not available. Basically the program's interface is ugly — buttons overlap each other and the edges of windows, for instance.

We might be able to overlook certain aesthetic and interface transgressions if the program had significant or special abilities. Although RecordHolder Plus provides a reasonable range of field types, a good selection of functions, and even input-formatting capabilities, everything is hidden someplace inconvenient. You can't even sort records into a specified order — you have to create a report form that has a specific order built in to it, and you can't see the report on-screen, except for two sample pages.

RecordHolder Plus wasn't able to perform most of our benchmark tests. Although it can do AND and OR searches, it can't do a group select — it looks for only the first record that matches the criteria. To see a sorted order on-screen, you have to save a report to disk and then open it, which accounts for the miserable performance results in the sorting tests (we timed only the processing time and not the time taken to set up the reports).

We could go on with the complaints or try to find a few compliments (the file size is compact). But whatever RecordHolder Plus' pluses are, its flaws are significant enough that we advocate avoiding it. The program is available not only as a separate product but also bundled in T/Maker's SmartBundle. We wonder if anyone at T/Maker has ever actually used it.

DAtabase

If you read the review of DAtabase in November '89 ("In Single File," page 114), go back and reread it — DAtabase hasn't changed. But the program that looked promising two years ago doesn't make the grade now.

You create a database with the DAtabase Builder utility (see Figure 3). (The trade-off for having a compact database-management DA is that you need a separate utility to create and edit your databases.) Right away, you run into severe limitations in interface as well as functionality. DAtabase is the only database program that makes you create a field and its label in separate operations. The process involves a confusing panel of icons, and it's difficult to distinguish among the tools for text labels, text fields, and text formatting. DAtabase Builder has no database capabilities, so you can't test your form by inputting sample data.

DAtabase has several limitations: It offers only one view for a file, although it does provide an alternative list view; it has no number or date fields (everything goes into text fields); and its calculated field has only the basic mathematical operators. There's a border command for fields and labels and you can import graphics, but no drawing tools are available. Finally, the program has a 50-item limit for a database, which you can reach quickly, because it includes every element — fields, labels, and even background pictures.

DAtabase Builder provides some special functions — its Xtras feature lets you incorporate things such as sound, phone dialing, and graphics grabbing. Its good points don't balance out the bad ones, however.

And the DAtabase DA's good points don't cancel out the problems involved in creating a database. DAtabase's general limitations hamper you in the number and types of fields you can create, and you also have to deal with minor but annoying "features" such as Command-K for Save and

Table 1: Deciding On a Database Program

	Pros
DAtabase	•DA convenience. •Xtras feature.
FileMaker Pro	•Elegant interface. •Many calculation functions. •Lookup feature. •Multiuser without additional networking software. •Extensive security options.
Panorama II	•RAM-based speed in sorts and searches. •Wide range of input formatting. •Clairvoyance option. •Lookup function. •Charting function.
RecordHolder Plus	•Small file size.

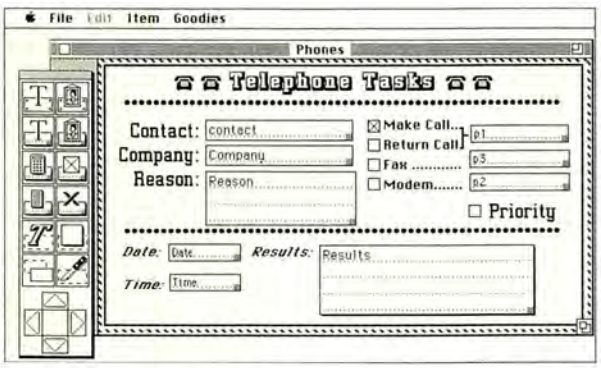


Figure 3: DAtabase Builder lets you design a DAtabase file, but it has a confusing set of icons in its Tool palette. There are two separate tools for text labels and text fields and a third for text formatting. The delete tool has no confirmation dialog box, and you can't undo the action.

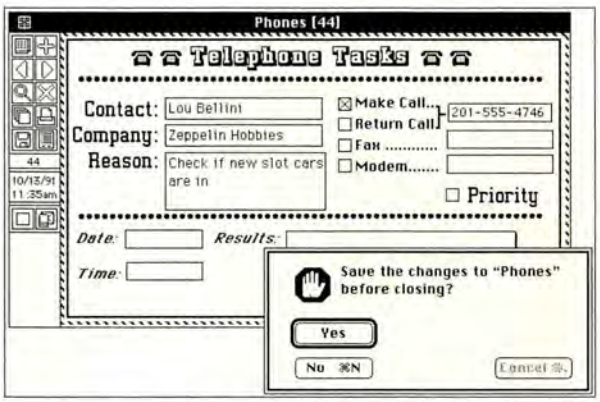


Figure 4: The DAtabase DA window shows the form you designed in DAtabase Builder and includes a set of control icons in the palette on the left. One glitch is in the dialog box that appears when you close the window: The Cancel button is always dimmed.

Cons	Ideal Users
•Single view only. •50-field limit, including labels. •Limited calculation options. •No reports. •Large file size.	•Users on a limited budget with equally limited memory and needs.
•Lacks input formatting. •No exact match in searches. •Summary report fields don't show on-screen. •Slow in some operations.	•Medium-to-heavy-duty database users who need ease of use rather than speed.
•File size limited by memory-partition size. •Confusing calculation setup.	•Medium-to-heavy-duty database users who need speed and are willing to surmount a learning curve.
•Clumsy, counterintuitive interface. •Single view only. •Slow. •No group record selection.	•None.

eternally dimmed Cancel buttons (see Figure 4).

The program did reasonably well in the benchmark tests it was able to perform, but it can't do multiple-criteria selections. The test-file size was a whopping 1,020K.

DAtabase still shows promise, but there's no indication that it will ever be fulfilled. With its design flaws and limited capabilities, it's certainly not appropriate for heavy-duty use. It works best as a quickie database program when you need information at your fingertips. But if that information is phone numbers or other contact data, there are DAs that can handle those jobs more elegantly and more powerfully than DAtabase can.

Panorama II

Panorama's approach to file handling is its greatest strength as well as one of its main weaknesses. The program keeps open database files entirely in RAM, so operations such as sorting and selecting are extremely fast but the overall size of any file is limited by the memory partition you're willing to assign to the program. (The latest version has an auto-save feature, so the other problem of RAM-based information — data loss because of an unexpected power failure or a foolish move — is no more likely than in any other program where you may forget to save your work except at long intervals.)

Creating a simple database is easy, especially when you use Panorama's default spreadsheetlike grid (see Figure 5). As soon as you go beyond the basics, however, you find some quirky features. Setting up a calculated field, for instance, requires writing an equation that's linked to a field where the input is part of the equation — not to the field where the result appears. With this system, *total=cost*tax* is attached not to the *total* field but to the *cost* field. In addition, simple calculations are difficult to set up, because it's not clear when to use the Formula Fill command, a macro, an equation in the design sheet, or a formula merge in an auto-wrap text object.

Panorama has more positive aspects than negative ones, however. Interestingly, many of its really nifty features are designed to conserve memory. The Flash Art feature, for example, is a way to retrieve graphics you want to use in picture fields in more than one record. The graphic is stored only once, but it can appear in any number of records. Panorama's wealth of input-formatting options also helps save memory. If you're storing 1,000 phone numbers for which you've typed a string of 10 digits with a defined format of (###) ###-####, for example, you'll save 4,000 characters by not having to type the parentheses, space, and hyphen in each field.

In addition to practically endless input-formatting abilities, Panorama features Clairvoyance, an option that can be turned on for any field. When you enter data in a field, Clairvoyance suggests what you want after a few

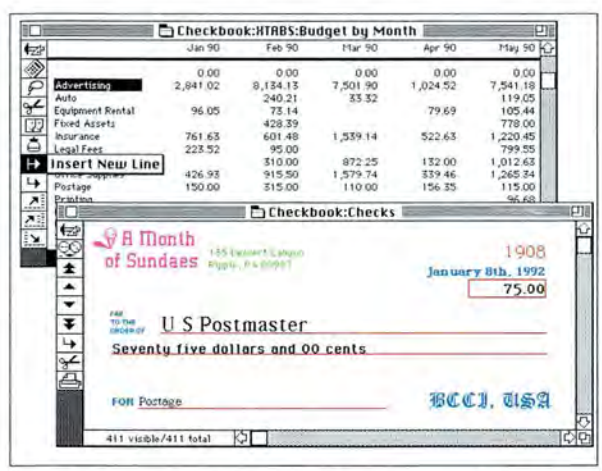


Figure 5: Panorama's original spreadsheetlike approach (top) is supplemented by as many graphic forms as you want to create (bottom). Holding down an icon pops out its description.

keystrokes, based on the contents of that field in any other record. You can also ask to see that field's entries in other records and pick from a list.

The program provides a spreadsheetlike view of the database, but this version doesn't let you type a cell entry at the top of the screen and then enter it in the cell as if you were using a spreadsheet program. Instead, a cell acquires a drop-shadow border when it's activated. Activating cells requires an extra keystroke or a double-click, and the window is limited to the column's width — you can't get at text beyond the cell's frame without scrolling or holding down an arrow key.

Panorama has a macro-recording feature — macros are listed on a menu for easy playback and are also available through user-definable buttons. It also has a lookup-table function that lets you access information in other files, the same semirelational capability FileMaker introduced.

Although Panorama does offer some multiuser support, it's a multiuser database program more in name than in deed. If you use Panorama in multiuser mode on a network — it requires network software, because it doesn't have any network capabilities built in — you can perform only three operations on a file. You can add a record, delete a record, or edit a record — you can't sort or otherwise manipulate the data. If more than one person edits a record, the last one to save the file "wins," which can be dangerous if your data is critical. If you want to do any data analysis on a shared file, you have to use the Snapshot mode, in which you can do anything you want to the data — except save it.

Because it's RAM-based, Panorama wins all the speed tests hands down. But speed is relative, and it isn't everything. Setting up your file and changing it takes a lot of time.

FileMaker Pro

FileMaker Pro is the champion Mac flat-file database manager, and deservedly so. This well-designed program has a features list that grows with each release. It's worth putting up with a few minor glitches — or forgoing a few wished-for functions — in order to benefit from its overall functionality and ease of use.



Figure 6: FileMaker's scripting and button-making capabilities let you design forms in which all the basic functions are accessible on-screen via HyperCard-like buttons.

FileMaker Pro gets high marks in the design category (see Figure 6). You can define almost any kind of field: text, number, date, time, picture, and calculated. Creating and formatting fields is a breeze, and wading through a long list of fields in the Create dialog box is much easier in this version than in previous ones. Repeating fields are available, but they can be frustrating to manipulate. Although you can perform overall operations (SUM, for instance) on the contents of repeating fields, you can't access an individual line of data.

You design forms for a database in the Layout mode, which includes a grid, a T square, and MacDraw-like drawing tools; you can also paste in graphics. Some things should be streamlined, though. Making a single-item check box, for instance, should be a matter of creating a field and defining it as a check box. The program makes you create the field and define a value list for it (two dialog boxes away), where you "list" the name of the field so it's assigned to the check box. Then you wend your way out of the dialog boxes, select the field, and use the Field Format command to make it a check box.

FileMaker Pro lets you create scripts that you can invoke

The Battle for Integration

A long time ago in a market far, far away, there was Microsoft Works — and not much else. Works is still around, but now there's GreatWorks and, probably by the time you read this, ClarisWorks and BeagleWorks too.

The Works 2.0 database module was always much weaker than the package's word-processing or spreadsheet modules. It's fast, because the file is always in RAM, and it shares a wide range of calculated-field functions with the spreadsheet program, but its flaws overshadow these two bright spots. Font- and color-formatting specifications apply to an entire record, for example. A field can't be any deeper than a single line. There are only two reporting functions — total and subtotal — and creating a report is a tortuous exercise. You can design only one view. You can't place a graphic in a background or a field, even though the package includes a drawing module.

The database module in BeagleWorks seems to be modeled after the one in Works and has many of the same flaws. It has limited form-design functions and only two report functions, although calculated fields can use almost all the spreadsheet functions. Dialog boxes are unnecessarily complex. BeagleWorks is better than Works, though: You can format fields separately (although their labels get matching formatting), use a single background graphic, and create a scrollable memo field. But beating the current version of Works isn't sufficient or difficult. The database module in BeagleWorks just doesn't measure up to the ones in GreatWorks or ClarisWorks.

Symantec's GreatWorks database module is so much like previous versions of FileMaker in looks, abilities, and basic command structure (menus and dialog boxes) that we had a hard time remembering what

program we were using. The interface is smooth: It's easy to get started and to keep moving. The program can handle picture fields and offers a special memo field type that includes a scroll bar.

ClarisWorks' database module predictably resembles a scaled-down FileMaker Pro. What's missing? Picture fields, the lookup function, buttons, scripts, pop-up menus, and some smaller items. But what remains is a core of abilities in the elegant interface that is Claris' trademark. If you're going to use both of Claris' database modules (FileMaker Pro on your primary Mac, for instance, and ClarisWorks on your PowerBook), the difference in keyboard command equivalents will drive you crazy. But that's not all: Although you wouldn't expect two-way file compatibility, FileMaker Pro can't read the database files ClarisWorks creates, unless you export them as text. There's integration, and then there's integration . . . .

Beagle Bros, Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121; (619) 452-5500.

Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052; (408) 727-8227.

Microsoft Corp., One Microsoft Way, Redmond, WA 98052; (800) 426-9400 or (206) 882-8080.

Symantec Corp., 10201 Torre Avenue, Cupertino, CA 95014; (800) 441-7234 or (408) 253-9600.



Figure C: Déjà vu: The BeagleWorks database module is uncomfortably similar to the one in Works. Better formatting choices and background graphics make it look a little better, but you're still stuck with field labels glued to field contents.



Figure D: Symantec's GreatWorks offers a full range of layout capabilities. Its Tool palette proves that it's not ClarisWorks or FileMaker Pro.

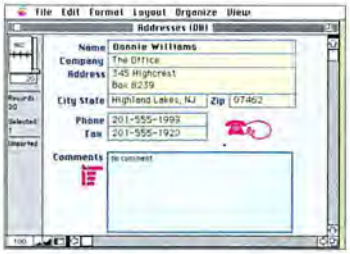


Figure E: Déjà vu all over again: ClarisWorks has most of the layout capabilities of FileMaker Pro.

through buttons, which you create by using a menu command, or simply by moving into a specific view of the data. However, these are not true programming scripts like HyperCard scripts; instead, they're single menu commands or options from a limited list of functions that are attached to a button. The scripting capability and especially the chance to attach a script to an on-screen button make FileMaker Pro very powerful and reasonably easy to use.

Data entry is easy in a well-designed FileMaker Pro file. With check boxes, radio buttons, and pop-up lists and menus, data entry can be quick. You can copy data for a specific field throughout a file, have data automatically entered when you create a new record, and use time and date stamps. Data entry would be even easier, however, if FileMaker let you define input formats for specific items such as phone numbers — as the program stands, if you want the area codes enclosed by parentheses, you have to do it manually.

FileMaker Pro has a powerful Lookup capability, which lets you retrieve related information from another file. This one-way information exchange falls short of true relational capability but provides an extra functionality that is often all most users need.

The Find function provides all the basic operators for retrieving data that matches specific criteria, but FileMaker Pro falls short in some of the basic search and select functions. You can't make a specific match: Looking for *Editor*, for instance, also finds *Managing Editor* and *Editorial*. Even using the Exact Match option doesn't do it, because in FileMaker Pro's case, "exact" refers only to uppercase and lowercase letters; it doesn't exclude extra characters on either side of the search string. Search, Select, and even the Lookup function ignore anything except alphanumeric characters, so FileMaker Pro doesn't see the difference between *A*, *A+*, and *A–*.

As you can see in the benchmark-test results, FileMaker Pro doesn't exactly scream through multilevel sorts, and it isn't a speed demon for other basics such as importing data either — especially when compared with Panorama. (FileMaker Pro lacks a true NOT criterion for selections, but some simple processes can use the Omit function instead, which is what we used for the benchmark test.)

Even with these limitations, FileMaker Pro has some major advantages over the other database programs reviewed here. It's easy to set up and use, and it's the only true multiuser flat-file database manager available. In fact, because FileMaker Pro doesn't require additional network software, it's ideal for businesses or departments that need to share data but don't want to go through the expense of maintaining a complex network.

Table 2: Features of Flat-File-Database Programs

● = yes ○ = no	DAtabase 1.5.1 $$	FileMaker Pro 1.0 v2 $$$$½	Panorama II 2.0.1 $$$$	RecordHolder Plus 3.1 r6 $
List price	$129.95	$299	$395	$149.95
Data entry				
Check boxes	●	●	●	●
Copy field	○	●	○	○
Date stamping	○	●	●	●
Default field value	○	●	●	●
Duplicate record	○	●	●	●
Input formatting	○	○	●	●
Lookup function	○	●	●	○
Multiple open files	○	●	●	○
Pop-up menus	●	●	●	○
Radio buttons	○	●	●	●
Unique fields	○	●	●	●
Validity checking	○	●	●	●
Field types				
Date fields	○	●	●	●
Number fields	○	●	●	●
Picture fields	●	●	●	●
Repeating fields	○	●	●	○
Time fields	○	●	●	○
Forms design				
Background graphics	●	●	●	○
Drawing tools	○	●	●	●
Macros/scripts	○	●	●	○
Multiple layouts	○	●	●	○
Manipulation				
AND/OR/NOT search	○	●	●	●
Field functions	4	61	57	40
Report capabilities	○	●	●	●
Group selection	○	●	●	○
Sort levels	1	all fields	all fields	all fields
Company	Baseline Publishing 1770 Moriah Woods Blvd. Ste. 14 Memphis, TN 38117 (800) 926-9677 (901) 682-9676	Claris Corp. 5202 Patrick Henry Dr. P.O. Box 58168 Santa Clara, CA 95052 (408) 727-8227	ProVUE Development Corp. 15180 Transistor Ln. Huntington Beach, CA 92649 (714) 892-8199	Software Discoveries, Inc. 137 Krawski Dr. South Windsor, CT 06074 (203) 644-9225

The Fittest Flat-File

So what's the ideal flat-file-database program? It's simple: Combine FileMaker Pro with Panorama's Clairvoyance and input-formatting abilities, and mix in DAtabase's data retrieval.

More realistically, the recommendation for those who are considering buying a low-end database program is easy: Save your money until you can buy one of the high-end products. With DAtabase costing $130 and RecordHolder Plus priced at a sinful $150, spending twice as much money will get you 20 times the program.

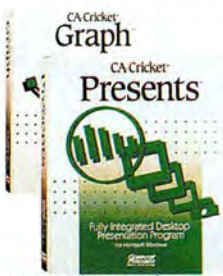
As to deciding between FileMaker Pro and Panorama II: Unless speed is of the essence, FileMaker Pro provides at least as much as Panorama, in a more elegant environment, for a hundred dollars less. Sometimes the best bargains aren't the ones that cost the least.

Sharon Zardetto Aker is the primary author of the third edition of *The Macintosh Bible* (Goldstein & Blair) and is also author of *The Macintosh Companion* (Addison-Wesley).



How An Unlimited Imagination Thrives On A Limited Budget.

The world's most-persuasive graphics software is now the most-affordable. CA-Cricket Presents is now just $199, and CA-Cricket Graph is only $129.



It's fast, easy and fully integrated. It's CA-Cricket® Presents,™ and it has every feature you need to bring your ideas to life.

A built-in outliner so you can organize your thoughts. Predesigned graphic templates. An electronic light table to edit and re-sequence your presentation. Plus speaker's notes and presentation-quality handouts and transparencies. And as you can see, you can even import graphics and scanned images from a wide variety of file formats including PICT, PICT2, EPSF and MacPaint files.

Need graphs for the slide show? Switch over to CA-Cricket® Graph.™ It comes with a selection of twelve graph types, plus all the color and fonts you need. With just a few clicks of the mouse, you'll have the charts and graphs that'll make your presentations shine.

So call 1-800-645-3003 for the location of your nearest dealer.

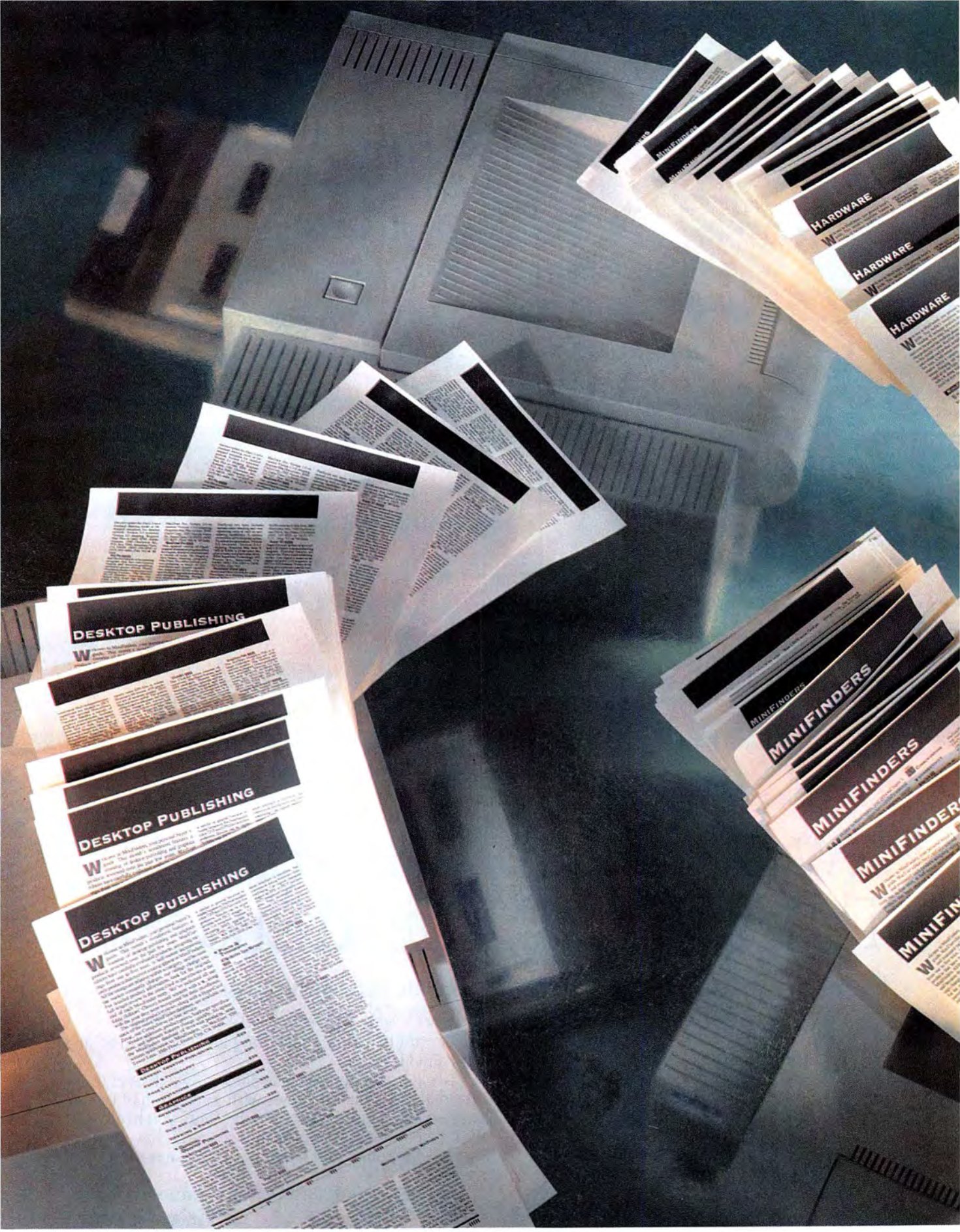
Now there are no limits to what the mind, or the wallet, can do.

CA90s
CA's Computing Architecture For The 90s.

COMPUTER® ASSOCIATES
Software superior by design.

© 1991 Computer Associates International, Inc., 711 Stewart Avenue, Garden City, NY 11530-4787. All trade names referenced are the trademarks or registered trademarks of their respective manufacturer.

CIRCLE 116 ON READER SERVICE CARD.


HARDWARE
HARDWARE
HARDWARE
MINIFINDERS
MINIFINDERS
MINIFINDERS
DESKTOP PUBLISHING
DESKTOP PUBLISHING
DESKTOP PUBLISHING



PHOTOGRAPHY: DOBO PRODUCTIONS

Publishing Your Data

Databases and desktop publishing are a match made in heaven, but getting them to start talking to each other requires a little help from the right software.

BY ERIC TAUB

Everybody loves a shortcut, especially one that saves money. If you need to publish a data-intensive document such as a catalog or a schedule, database publishing is a shortcut you can't afford to ignore. Instead of outputting the information in your database; taking it to a publisher; and having it reentered, formatted, and typeset for publication, you can go (more or less) directly from your database program to a finished publication.

Database publishing has been around for several years on the Mac, and a broad range of options is available, from graphically sophisticated database programs to database-savvy page-layout programs to specialized software that bridges the gap between the two camps. Let's take a brief look at each approach.

Solo Data

If your information is already in a database, the simplest solution is to leave the information where it is and use your database program to do your page layout for you. Many database programs, including ACIUS' 4th Dimension, Odesta's Double Helix, and Claris' FileMaker Pro, have substantial layout features. (Another possibility is to use an integrated program such as ClarisWorks or RagTime, but they don't offer very powerful database features.)

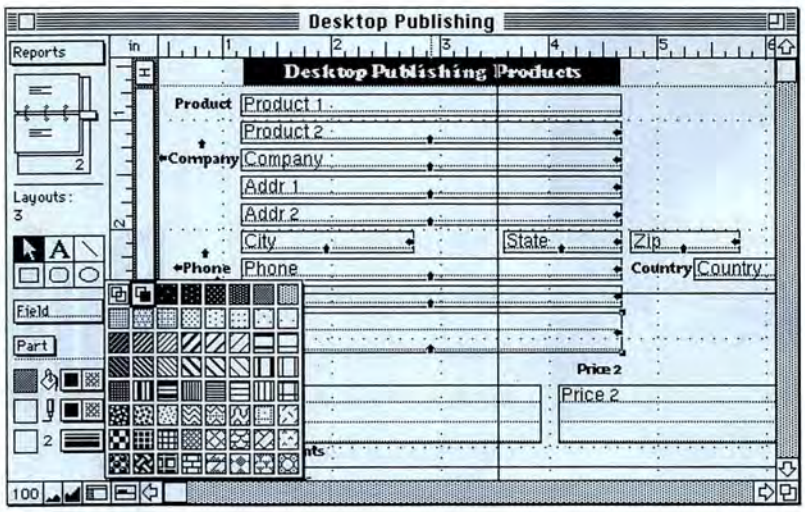


Figure 1: FileMaker Pro's Layout view offers simple mail-merge features and some typographic and layout control, but it falls far short of doing true desktop publishing.

Unfortunately, no database program currently available for the Macintosh has the typographic sophistication of even the simplest page-layout program. For instance, not a single Mac database program can use the pair-kerning information that might be built in to a typeface. Most of these programs can specify leading (the space between lines of type) only in multiples of the type's font size (such as single-spaced or double-spaced) rather than in absolute point values (such as 14 point). As for custom kerning, tracking, or hyphenation and justification, forget it.

Although many database programs let you specify colors, using the standard Mac pop-up 256-color palette, none allows for true spot- or process-color separations. Of course, if you're brave, you can print your color database file to disk as a PostScript file (System 7 lets you do this by clicking on the PostScript File button from the Print dialog box) and run the file through a program that can separate it, such as Aldus PrePrint. This is a roundabout solution, however, compared with simply exporting the information to a program that can already handle color.

FileMaker Pro is one of the best database programs for creating pages. You can drag data fields from a pop-up list onto your layout, and you can apply rudimentary text sizing and styling to any field. You can draw rudimentary shapes and use FileMaker Pro's rulers and T-squares to align objects. You can also lock the position of objects and even apply simple foreground and background colors and patterns when you're using the FileMaker Layout view.

FileMaker's Layout view can perform some simple mail-merge functions, such as compensating for blank fields in a record (see Figure 1). By designating a field as a "slider," you can set up FileMaker Pro to move surrounding fields to compensate for a lack of data in that field. This lets you create a catalog of addresses, for example, in which even though some fields have one line and others have two or more, the output won't be riddled with unsightly gaps. However, FileMaker Pro suffers from the same typographical naïveté as other database programs do.

Solo DTP

Just as you can create layouts from within a database program, you can also manage a database from within a page-layout program. Publish It! Easy 2.1, from Timeworks, contains a built-in database program called File It! File It! is a simple flat-file-database program with few bells and whistles, but it's more than adequate for maintaining simple lists of addresses or products. It also has many well-designed features for integrating data into Publish It! Easy documents.

File It! database files have only one layout, a simple row-and-column arrangement that looks like a spreadsheet. The plain look belies the data-management options that make

Table 1: Five Ways to Do Database Publishing

Method	Software
•Use a database program only.	•FileMaker Pro or any database program with advanced report-design features.
•Use a page-layout program only.	•Publish It Easy! 2.1.
•Combine a database and a page-layout program.	•Any database program and any page-layout program.
•Use typesetting tags.	•Any programmable database program and any page-layout program that can read tags.
•Use a database-publishing utility.	•Xdata (for QuarkXPress) or DataShaper (for PageMaker).

File It! and Publish It! Easy a useful stand-alone database-publishing package. File It!'s best feature is its ability to place the results of formulas in a field. By using a feature called Mr. Formula (don't let the cute name fool you), you can access many relational, arithmetic, and conditional functions, including built-in smart text concatenation (see Figure 2). Mr. Formula can even check for syntax errors in your formulas.

You can set up Publish It! Easy so that documents containing data fields are treated as form letters (using one record per document and repeating the entire document for each new record) or as mailing labels (printing multiple records on each page). Calling this option Mailing Labels is a bit misleading, because it's also how you print any other multirecord document, such as a catalog or a directory.

Publish It! Easy and File It! are a convenient pairing, but they do have some drawbacks. Once you've created fields in a File It! data file, you can't change their order. Although you can insert text as part of formulas, you can't insert tabs or returns. So if your data file occasionally has empty fields (for instance, some entries have two or three fields of phone numbers and others have none), you can't create a layout that avoids blank lines for these empty records. By using formulas and putting many elements on one line, you can reduce the number of blank lines, but you can't eliminate them altogether.

Database and DTP Together

Suppose you have both a database program and a sophisticated page-layout program. Why not go directly from one to another? Well, you can, but it won't necessarily be easy. The simplest method is to export your data from your database as a tab- or comma-delimited ASCII file. After you've exported the data, you can use your layout program's text-importing command to position it in a document. Tab-delimited files usually require lots of work after you've imported them. Even if you use style sheets to quickly apply predefined paragraph formatting, you still need to do a lot of manual selecting and modifying, word by word and line by line.

What if you want to lay out your data in a format that's more complicated than a columnar table? You might need to combine the information from several fields in a record into a single paragraph that contains some predetermined text such as a listing of sizes and prices for a single product, with tabs with leader dots between the entries.

One problem with the ASCII approach is that it doesn't address the problem of how to handle blank data fields. If you don't want your document peppered with unnecessary blanks, you'll need to proofread and edit it — a process that's so labor-intensive that it negates the benefit of database publishing.

These problems can be solved in two ways. You can use your database program to massage raw information so that it contains the formatting instructions for your page-layout program, or you can configure your layout program to do the massaging.

Codes and Tags

Most high-end Mac database applications are programmable. If you take the time to learn their languages, it's not difficult to create reports by using formulas that automatically compensate for blank fields or that concatenate the contents of several fields, along with text, to create new ways of arranging the database's information.

You can tell a programmable database manager to add text-formatting information to exported files. To do this, you must know, in addition to the database's programming language, the tagging system your layout program uses. Tagging is a method in which you include codes within a plain ASCII text file that instruct a layout program what formatting should be applied to the text.

Such a code can be a simple instruction for the layout program to apply a predefined style to a paragraph, or it can contain a specific formatting instruction for a single character or a range of text. When the layout program interprets the tags, it automatically applies the formatting and also removes the tags.

QuarkXPress supports two tagging formats: Style Tags and XPress Tags. You'll probably want to stick with the newer XPress Tags, which lets you use tags to assign every one of QuarkXPress' formatting commands as well as define styles through tags.

PageMaker 4.0's more rudimentary tagging, available through its smart ASCII filter, is limited to assigning predefined styles to paragraphs. Version 4.2 of PageMaker supports far-more-powerful tagging capabilities, however. In fact, the new Aldus language sounds much like the DesignScript command language that is used by LetraSet's

Pros	Cons
•Economical. •No data massaging necessary.	•Only rudimentary typographic capability. •No support for color publishing.
•Economical. •No data massaging necessary. •Good typographic capability.	•Can't eliminate all blank lines from a layout.
•No special software required.	•Too much data massaging to be cost-effective.
•Flexible and powerful. •Utility programs available for 4th Dimension users (CatBase and 4D/Frame Connection).	•Requires database programming. •Complicated to set up.
•Flexible and powerful. •Requires special software.	•Complicated to set up.

DesignStudio. This powerful tagging language lets you not only specify text formatting but also create and position page elements, such as text and picture boxes, anywhere on a page.

Frame Technology's FrameMaker, a powerful long-document processor, also uses two tagging languages, MML and MIF. MML lets you create tags for most basic text and paragraph formatting, and MIF codifies virtually any object you can create in FrameMaker. And Xerox's Ventura Publisher, the pioneer of tagging, inserts formatting tags into any word-processing file it incorporates into a document.

If you're good at programming and are resourceful, you can write a program that has your database program add the appropriate tags to fields or groups of fields when you export data. Even simple FileMaker Pro, which isn't really programmable, can add tags to data in a report if you're clever with its arithmetic functions.

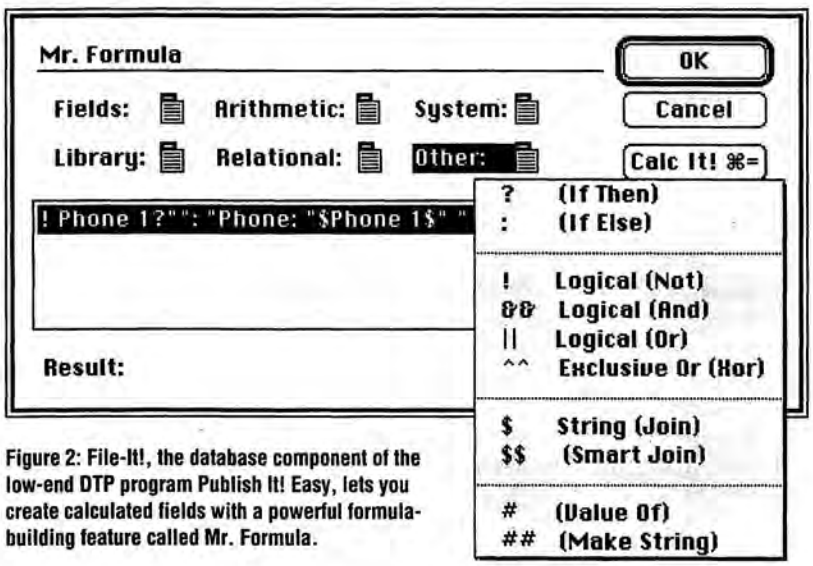


Figure 2: File-It!, the database component of the low-end DTP program Publish It! Easy, lets you create calculated fields with a powerful formula-building feature called Mr. Formula.

Tagging Tools

Writing your own database programs to produce tagged text gives you lot of flexibility, but it's not easy. What if you're not a genius programmer? There's still help for you.

CatBase 2.1, from BBF Publishing, is unique in the Mac database-publishing world. It's a stand-alone 4th Dimension database program (written in ACIUS' 4th Dimension but compiled so you don't need 4th Dimension to run it) custom-designed to export tagged data to QuarkXPress or PageMaker. As its name implies, CatBase is for keeping track of product information for catalogs. It consists of four linked relational-database files: Companies, Products, Company Contacts, and Product Details.

CatBase's facilities for entering and tracking data are powerful and varied, and BBF Publishing has designed enough flexibility into CatBase to accommodate maintaining a database of almost any information, not simply companies and products. In addition to all the data-entry fields you'd expect, the program has many user-definable fields. For those who find these inadequate, BBF can customize CatBase to fit more-specific needs.

As well organized as it is, CatBase would be just another database program if it weren't for its special exporting features, which let you apply the names of paragraph styles if you're sending data to PageMaker (you must define the actual styles in PageMaker) or define QuarkXPress paragraph styles from within CatBase. CatBase re-creates every dialog box that's in QuarkXPress for defining styles — down to the last radio button and check box. If QuarkXPress can do it, CatBase can specify it, from drop caps, leading, and tabs to custom colors, paragraph rules, and horizontal scaling.

Once you've defined paragraph styles, you must also have paragraphs to apply them to. CatBase also shines here, with a comprehensive set of dialog boxes for creating each paragraph as if you were assembling building blocks. You can combine data fields, text, formulas, punctuation, calculations (for summaries, subtotals, and the like), and subsidiary related elements in a single paragraph. Although it's complicated, CatBase gives you tremendous flexibility in exporting data. The formulas, in particular, let you have CatBase export different fields or specific text based on

Directory

ACIUS
10351 Bubb Road
Cupertino, CA 95014
(408) 252-4444
4th Dimension, $795

Aldus Corp.
411 First Avenue S.
Seattle, WA 98104
(206) 628-2320
PageMaker, $795

BBF Publishing
98 Wadsworth Blvd.
Suite 127 – 263
Lakewood, CO 80227
(303) 987-8577
CatBase, $995
CatBase Light, $495

Claris Corp.
5201 Patrick Henry Drive
P.O. Box 58168
Santa Clara, CA 95052
(408) 722-8227
FileMaker Pro, $299

ElseWare Corp.
3201 Fremont Avenue N.
Seattle, WA 98103
(206) 547-9623
DataShaper, $179.95

Em Software
P.O. Box 402
Westbrook, CT 06498
(407) 321-8173
Xdata, $199.95

conditional statements. If the price of an item is greater than a certain amount, for example, CatBase can automatically mention that that item's shipping is free. If a field is blank, a formula can tell CatBase not to bother exporting it.

Not only can you define paragraph styles in CatBase but you can also assign some character formatting, such as font, size, and color, to each paragraph element. As a final touch, wherever you enter text in CatBase, you can always include QuarkXPress formatting tags. Because CatBase produces a tagged ASCII file, these tags are seamlessly included in the final output.

Although CatBase frees you from having to write programs, you must still think like a programmer to get the most from the program, especially if you're working with large, complicated databases and report formats. Its other drawback is that CatBase handles only text, not graphics.

For those with simple database needs, BBF publishes CatBase Light, which is limited to 500 records but is only half the price of the unlimited single-user version. BBF also plans to publish a version of CatBase that will support FrameMaker's MML tagging format.

If your database program is 4th Dimension and your page-layout program is FrameMaker, you're in luck. ACIUS and Frame Technology are distributing 4D/Frame Connection. These tools can be pasted into any 4th Dimension database, adding buttons and dialog boxes designed for exporting data tagged with FrameMaker's MML format. The utilities won't let you actually define FrameMaker styles, as CatBase does for QuarkXPress, but if you create a FrameMaker document and define styles within it, any data that's imported with 4D/Frame Connection will have the proper styles applied. That's saying quite a bit, because Frame's character and paragraph styles are by far the most powerful of any in a Mac layout program.

4D/Frame Connection also lets you concatenate fields to build paragraphs, create anchored frames within FrameMaker, and import graphics. You can add indexing codes so your data will come into FrameMaker not only properly formatted but also ready to be automatically indexed. A few drawbacks: 4D/Frame Connection doesn't automatically compensate for fields that might be empty in some records, and you have to know enough 4th Dimension programming to properly incorporate these tools into your databases.

However, considering that Frame gives users 4D/Frame Connection without charge (simply mail the company a floppy disk), it's a must for anyone who uses 4D and FrameMaker. (ACIUS is mailing the utilities to its developers, who are free to modify and further distribute them.)

Although no Mac products are aimed at database publishing with Ventura Publisher, Ventura Software has introduced Ventura DataBase Publisher for PCs in GEM and Windows versions. This program exports information from PC database programs formatted with tags for the PC versions of Ventura Publisher, PageMaker, and InterLeaf Publisher. These three programs also have Mac versions that can import and format tagged files regardless of their origin. If you're adventurous enough to explore this avenue, don't forget to use a file-translation program that can properly convert DOS-style ASCII files to Mac-style by stripping out the line-feed character at the end of every line.

Fairfield Software, Inc.
200 W. Lowe
Fairfield, IA 52556
(515) 472-7077
ClearAccess, $460

Frame Technology
1010 Rincon Circle
San Jose, CA 95131
(408) 433-3311
FrameMaker, $795

Letraset USA, Inc.
40 Eisenhower Drive
Paramus, NJ 07653
(201) 845-6100
DesignStudio, $795
DesignScript, $125

Quark, Inc.
300 S. Jackson Street
Denver, CO 80209
(303) 934-2211
QuarkXPress, $795

Timeworks, Inc.
625 Academy Drive
Northbrook, IL 60062
(708) 559-1300
Publish It! Easy, $149.95

Ventura Software
15175 Innovation Drive
San Diego, CA 92128
(619) 673-0172
Ventura Publisher for Macintosh, $795

Formatting Utilities

Tweaking a database program to arrange and format your information can be quite a challenge, especially if you don't have programming experience. Suppose you use data from many different sources. It might be hard to ensure that all your information arrives at your page-layout program tagged and ready for use. In such cases, it's probably easier to work with plain delimited ASCII files and to do all the formatting in your layout program. It would be easier if you could set up your document once and have your layout program automatically apply the design and formatting you want to your data when you import it.

Fortunately, superb programs are available for the two most popular layout applications. PageMaker users can turn to ElseWare's DataShaper, and QuarkXPress users can get Em Software's Xdata. Both programs bring mail-merge functions to these layout programs.

DataShaper is a truly integrated add-on for PageMaker. To use DataShaper, you first write *placeholder statements* in PageMaker, using percent signs and somewhat cryptic codes that indicate where specific data fields go. You can then apply formatting to the code that represents each data field and export the text, using DataShaper's export filter. This creates a *format file*. When you use the Place command and select a format file, you get a DataShaper dialog box that lets you choose the actual data file. Then you can

place the data as you can any other text, and it will appear preformatted, as specified by the placeholders.

Because you can have several formatted fields within a paragraph, using DataShaper is a useful, automated way to get around PageMaker's weak, paragraph-only tagging. DataShaper also lets you automatically import graphics files with your data and use PageMaker's indexing feature to index your data automatically. PageMaker supports links to text files, so anytime you need to update a document that uses DataShaper, you simply export the new information from your database to the same location and filename on your Mac and PageMaker automatically reimports and formats it with DataShaper.

DataShaper's single-character codes can be confusing at first, but the program comes with a full array of predefined templates for most uses such as creating catalogs, form letters, mailing lists, and name tags. For those who plan to use PageMaker for database publishing, DataShaper is probably the best product on the market.

Xdata works similarly to DataShaper, but instead of having to enter confusing one-character codes for most fields, you can enter the name of the field within brackets, along with other Xdata commands, to indicate where information should go (see Figure 3). Formatting works in much the same way that it does in DataShaper: You simply use QuarkXPress' character- and paragraph-formatting commands to give field names the formatting that you want to be applied to the text when you import it.

Instead of working with filters, Xdata uses *prototype statements* that you type directly into your QuarkXPress documents. If you position the insertion point anywhere in a prototype and use the Get Text command to import your delimited data, Xdata will replace the prototypes with your formatted information. Importing data wipes out the prototype statements, so the manual recommends that you save prototype-containing documents you'd like to reuse as QuarkXPress templates.

Xdata 1.5, which should be available by the time you read this, lets you import picture files, although there are no PageMaker-like links to data files. You must manually reimport your data whenever you want to update documents.

Future Developments

One thing you won't see soon in the database-publishing field is much use of System 7's publish-and-subscribe. If you had a database containing 8,000 fields, you'd have to publish each one and then subscribe to each one in your page-layout program. Although an enterprising developer could surely automate this process, cluttering up your Mac with 8,000 edition files seems like a sure way to slow even the speediest machine to a crawl. This might not always be an insurmountable problem, however, because CatBase's distributor, BBF Publishing, is investigating using publish-and-subscribe to create two-way links between documents and databases. With this feature, if data changes in your

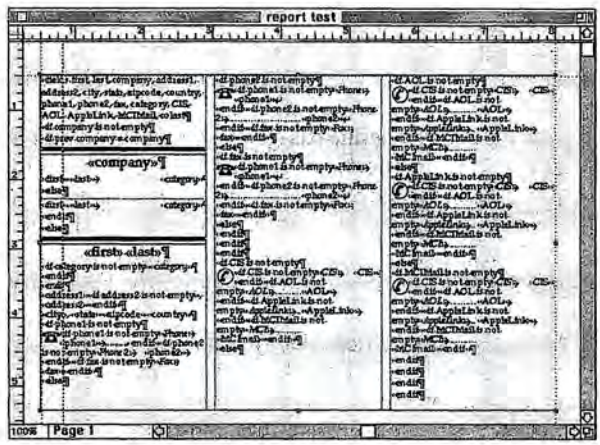


Figure 3: Here's a prototype statement in QuarkXPress for use by Em Software's database-publishing utility Xdata. Notice the many conditional statements (`if-endif`) that ensure that there won't be any blank lines in the final output. PageMaker users can get similar results with ElseWare's DataShaper.

layout program, the new information will be brought back into CatBase automatically.

In the future, expect to see more enhancements that reduce the number of steps needed to publish from a database. For example, upcoming versions of Xdata and DataShaper will work with Fairfield Software's ClearAccess and its ClearLinks external tools, which can use automated scripts to connect with remote Mac, PC, mini, and mainframe databases that support SQL (Structured Query Language). With the benefit of System 7's Apple events and future versions of these programs, you will be able to give a simple command from within your layout program and the combination of Xdata or DataShaper and ClearAccess will automatically find the source database; export the data fields you need; and bring the database into QuarkXPress or PageMaker, already formatted, positioned, and ready to be printed. You will even be able to create documents that periodically update themselves, untouched by human hands.

What to Choose?

It's convenient but limiting to create layouts directly in a database program. We also don't recommend working with plain delimited ASCII files unless you have a lot of time on your hands or you aren't fussy about the quality of your final output. Programming your database to add tags gives you flexibility that's limited only by your skill as a programmer but can be difficult and esoteric for neophytes. CatBase, 4D/Frame Connection, DataShaper, Xdata, and Publish It! Easy are all excellent programs that offer powerful, flexible database-publishing possibilities, depending on your budget, current layout program, and database needs.

Eric Taub is a New York City free-lance writer and Mac publishing consultant.

Now There's More Than One Removable!



MicroNet's 44 and 88 MB SyQuest Removable Cartridge Systems.

Now there's more than one removable cartridge system to fit your on-line data storage needs. Our 44 or 88 MB drives provide infinite storage capacity and valuable data protection – simply lock away cartridges for total security.

MicroNet's removable cartridge systems feature 20 ms access, embedded SCSI disk controllers to assure cartridge interchangeability, and proven Winchester technology with voice coil positioners. Our popular MR-45 offers assured compatibility with an installed base of 500,000 users. And the added capacity of our new MR-90 makes it great for backing up fixed hard disks and for transporting large graphic or CAD files.

Performance Quality AWARD OF EXCELLENCE Support Commitment

Both the MR-45 and MR-90 are compatible with Macintosh, IBM PC/AT, and PS/2, and support Netware, UNIX, A/UX, and DOS. Internal PC systems are available with host adapter, cables, and device drivers for easy installation.

Choose a MicroNet 44 or 88 MB removable cartridge drive today. Either way you go, you're sure to pick a reliable system with unlimited storage options. Give our sales department a call at 1-714-837-6033.

Quality You Can Count On.

MicroNet Technology, Inc.

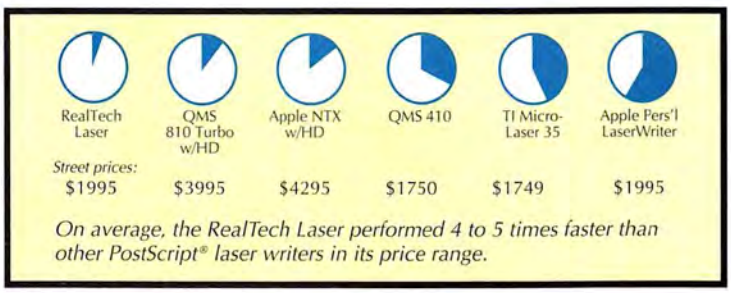
MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: D1656 • Compuserve: 76004,1611

MR-45 and MR-90 are trademarks of MicroNet Technology, Inc. All other trademarks are the property of their respective owners.

CIRCLE 138 ON READER SERVICE CARD.

DARE TO COMPARE.



On average, the RealTech Laser performed 4 to 5 times faster than other PostScript® laser writers in its price range.



500% FASTER
than non-RISC printers

- RISC processor
- 2 paper trays
- 9 pages/minute
- SCSI port

$1995
RealTech Laser

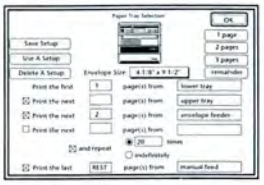
Visibly faster. The RealTech laser printers' high performance Weitek RISC processor prints complex documents 4 to 5 times faster than other non-RISC laser writers in their price range. ATM font rendering technology builds raw type characters 4 to 5 times faster. The RealTech uses a new version of the Sharp printer engine that prints 9 pages per minute.

Based on Adobe PostScript® Level 2... the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new halftone algorithms.



Elimination of fragmentation = memory allocated dynamically and automatically reclaimed

Genius-level memory. One pool of memory is available for all resource needs. Memory is dynamically allocated and automatically reclaimed; no arbitrary memory restrictions exist. Disk space management is improved to eliminate fragmentation and improve transfer of information from the hard disk to RAM.



You can specify up to 4 paper changes from the menu — without ever leaving your chair!

2 paper trays included. An ideal choice for multi-user printing environments. Includes two 250-sheet cassette feeders as a standard feature. Optional envelope feeder available for RealTech only.

HOW REALTECH STACKS UP

PERSONAL LASER PRINTERS

	RealTech Laser	Apple LaserWriter IIf	Qume CrystalPrint Publisher II	Texas Instru. PS35	GCC BLPIIs
Price	**$1995**	**$3999**	**$2995**	**$1995**	**$2899**
Pros	Weitek RISC processor	Motorola 68020	Weitek RISC processor	Motorola 68000	Motorola 68000
	9 ppm 8.5x11	8 ppm 8.5x11	6 ppm 8.5x11	9 ppm 8.5x11	8 ppm 8.5x11
	2nd paper tray	—	—	Optional 2nd paper tray	—
	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	—	—	SCSI port
	2 mb RAM (+10*)	2 mb (+32*)	3 mb (+6*)	1.5 mb (+4.5*)	1 mb
	PostScript Level 2	PS Level 2	—	PS Level 1	Quick Draw
Cons	Only available through	Very expensive	Expensive	Slow for graphics	Expensive
	HARDWARE THAT FITS	No 2nd paper tray	No 2nd paper tray	No SCSI port	No 2nd paper tray
	1-800-972-3018		No SCSI port;	Limited to 6 mb RAM	
	Optional env. feeder $269		PS clone	*Optional paper tray $199* *Optional env. feeder $269*	Not PostScript compatible

* = upgradable

HARDWARE THAT FITS

610 S. Frazier
Conroe, TX
77301

(Please.)

RealTech laser printers come out on top in performance, features, AND price, every time.

TWICE THE PRINTER!

400 dpi/11x17 printer

- ***High-speed printing (16 ppm, letter size)***
- ***8 ppm (tabloid size)***
- ***2 paper trays included!***
- ***SCSI port***



See our ad on pages 150-155

$4495

RealTech Laser 400

AGAINST THE COMPETITION

11x17 PRINTERS/HIGH-SPEED PRINTERS

	RealTech Laser	*QMS 2210*	*Hewlett-Packard IIsi*
Price	**$4495**	**$9995**	**$6995**
Pros	Weitek RISC processor	Motorola 68020	RISC-based formatter
	8 ppm 11x17	11 ppm 11x17	
	16 ppm 8.5x11	22 ppm 8.5x11	17 ppm 8.5 x 11*
	2 paper trays	Optional 2nd paper tray*	2 paper trays
	300 or 400 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	
	4 mb RAM upgradable to 16	4 mb RAM	5 mb RAM upgradable to 17 mb
	PostScript Level 2	PS Level 1	PS Level 1
Cons	Limited supply	Very expensive	Expensive
	until 4/92	Limited to 300 dpi	Limited to 300 dpi
	1-800-972-3018	Poor paper handling	No 11x17 output; no SCSI port
		Slow for complex graphics; 4 mb RAM maximum ** Optional paper tray $115*	** Optional double-sided printing costs $695; not practical for most applications*

The ideal networking printers.

The RealTech Laser's (and Laser 400's) three interface ports (Appletalk® RS-422, IBM PC parallel, and RS-232-C) can be used simultaneously. They can be assigned either PostScript® or LaserJet II emulation, making the RealTech an ideal network printer. It switches automatically between interfaces and emulations, and spools files on a real-time basis. A Hewlett Packard LaserJet Series II emulation allows use with non-PostScript applications software.

SCSI port. The standard configuration includes a SCSI port and 2 Mb of RAM upgradable to 10 Mb (RealTech Laser) or 4 Mb of RAM upgradable to 16 (RealTech Laser 400).

Money-back guarantee.

RealTech laser printers are backed by a one-year warranty. If you're not satisfied, we'll refund your purchase price, minus consumables.

Prices are subject to change without notice.
Before returning merchandise, we must ask that you call our Customer Service Dept. to receive a returned merchandise authorization number (RMA). This number must be included with any printer you return. No C.O.D. returns, please. NOTE: Our ads are created entirely on Macintosh systems, from concept to film.

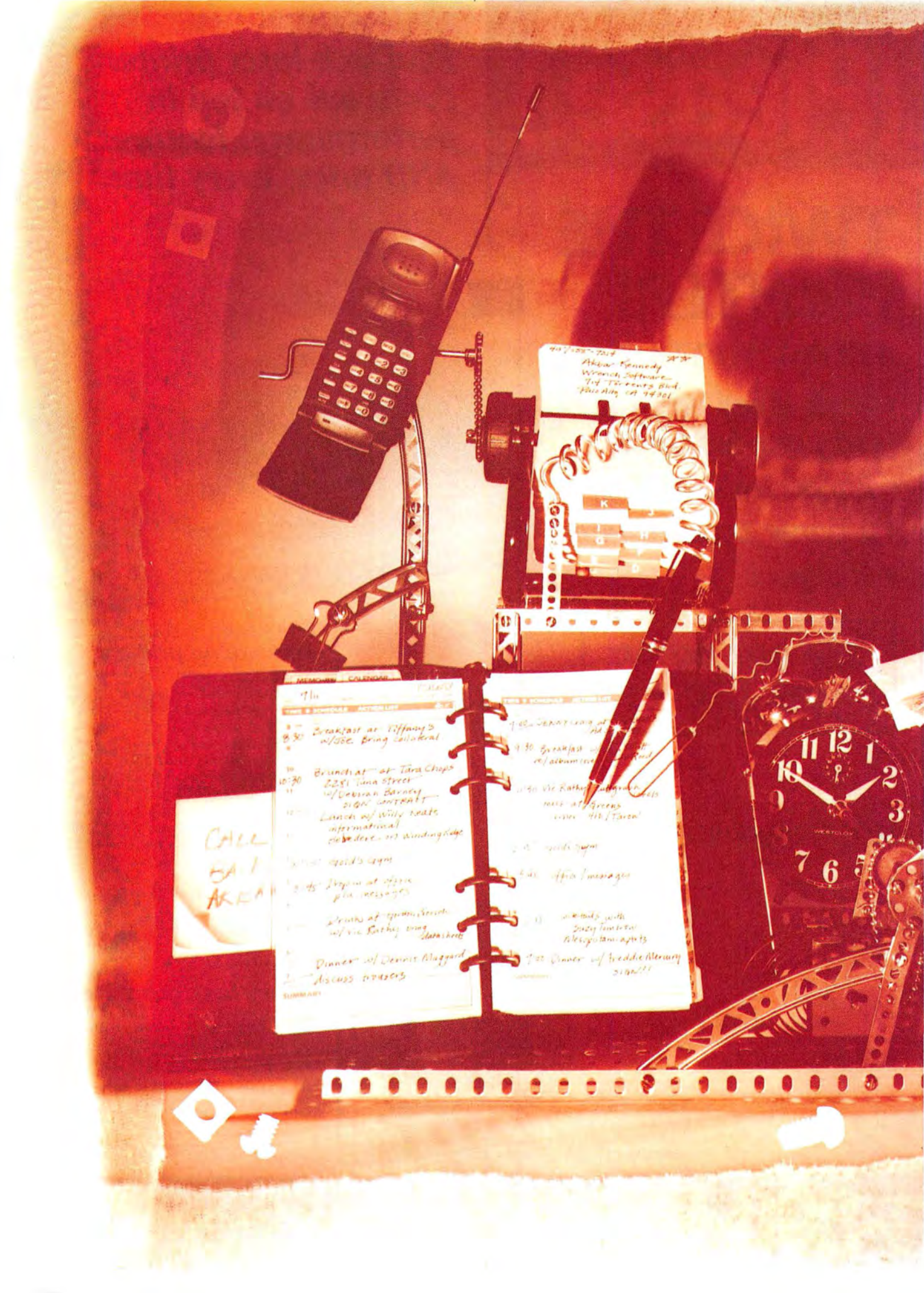
1-800-972-3018

FAX: 1-409-539-4141

CALL: 1-409-760-2400

MasterCard VISA

CIRCLE 196 ON READER SERVICE CARD.


MEMORIES
CALENDAR
Breakfast at Tiffany's
w/Sol. Bring collateral
Brunch at Tara Chops
2251 Tara Street
w/Deborah Barasky
SIGN CONTRACT
Lunch w/ Willy Wats
informational
Belvedere on Winding Ridge
Dinner w/ Dennis Maggard
Discuss terms
Akbar Kennedy
Wrench Software
Dinner w/ Freddie Mercury
SIGN!!!
CALL
BA
AREA



PHOTOGRAPHY: TOM UPTON AND CATHERINE LUSH

Staying in Contact

Contact managers give sales people the tools they need to close the deal.

BY TOM PETACCIA

Salespeople rarely use computers, because, until recently, no software was available that met their specific needs. Several database developers have successfully responded to this challenge by creating several very good sales-management tools based on the 4th Dimension, Double Helix, FoxBASE+/Mac, and Omnis 5 database managers and HyperCard. These sales, or contact, managers go far beyond being straight Rolodex-type lists of names and addresses. They can help users establish and track the development of new customers, from initial lead to final sale, as well as help maintain and retain existing customers.

We took a look at seven leading contact managers: Client 2.0, Colleague 2, Contact Ease, Control Classic, Market Master, QPID, and TeleMagic. (Chang Labs was invited to submit C•A•T III but declined to do so.) For the most part, we liked what we saw.

Client 2.0

Trendware's Client 2.0 is a HyperCard 2.0 stack. Although it's not as feature-rich as the other products, it's by far the least expensive and still provides a nice interface and a fair selection of features.

Each prospect/customer has one Main Client card (see Figure 1) plus an unlimited number of Interest, Financial (purchase history), and Contact cards. All are fully customizable. You can change any of the field labels and data types (text, number, or date) and decide whether the field is required — fields can't be blank. For the Main Client, Interest, and Financial cards, you can also specify which fields can have lists of choices to streamline data entry.

For each new contact, you click on the Contact button on the Main Client card and then on the New Contact button on the Contact card. This automatically enters the client name and date you previously entered on the Main Client card on a new Contact card, and you simply enter a subject and comments in the fields provided. You can scroll through the various Contact cards, but you can't get a list of contacts without creating a customized report. You can quickly remove old contacts by clicking on the Delete Contacts button, which gives you a Delete All Contacts Before dialog box.

Unlike the other programs, Client 2.0 doesn't have an automatic in box in which the program automatically places a day's scheduled activities. Instead, it has a Tickler card that lists follow-up date, company, division, phone number, and remarks. It doesn't include the contact's name, however. You add an item to the Tickler card by choosing Add Client to Tickler from the Client menu.

Importing files from another database isn't as clean as it is in the other programs. The import file needs to have some formatting codes added for each record. A good word processor can handle these additions quite easily, but this is an extra step that's unnecessary in the other programs.

There is no built-in mail-merge feature, but any search results can be exported to a text file. You'll have to add formatting codes to this text file too before it can be used as a data file for creating form letters.

Trendware went to great lengths in working around HyperCard's anemic report-generating capability to provide a small but functional set of preset reports and mailing labels that can print all records or a subset based on search criteria.

The 50-page manual is adequate but poorly organized. It assumes that users are familiar with HyperCard or at least have access to a HyperCard manual — for example, the section on reports refers users to the HyperCard manual for details on creating customized reports.

The skimpy manual and extra import and export steps might be enough to scare off some users, but for sales reps on a tight budget or wanting an extremely detailed personal address book, Client 2.0 may be worth considering.

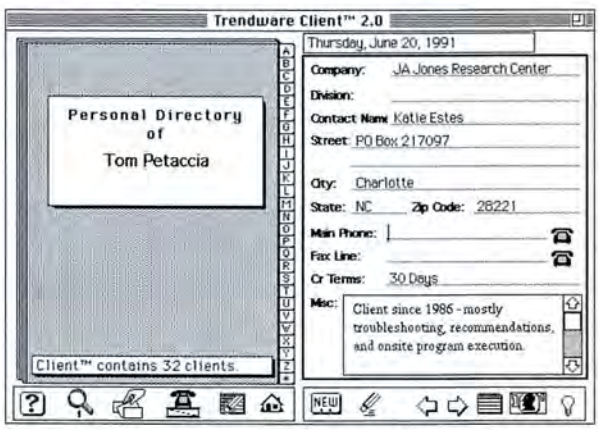


Figure 1: Client 2.0, a HyperCard stack, provides users with a friendly address-book metaphor for entering and recalling clients and contacts. It's not as full-featured as the other products, but it's significantly cheaper.

This Just In: PowerTrax

As we went to press, we received Soft Solutions' PowerTrax, a 4D-based contact manager. Here are our first impressions.

PowerTrax is similar to Diamante's Control Classic, with some new twists and some missing pieces. It incorporates Client, Contact, Scripts, and Plans functions, and it also adds individual and group activity time lines, personal expenses, and comprehensive schedule options (day, month, or quarter).

PowerTrax includes a portion of the powerful 4D formula feature (it's buried in the Sort dialog box), but the package doesn't offer the full formula command set, as does Control Classic. The formula feature isn't even mentioned in the otherwise well-written and illustrated manual.

PowerTrax's overall interface is visually appealing, but there are some inconsistencies. For example, the View By sort buttons (ascending/descending) appear to be one button, although they're actually two (one for ascending, one for descending). The auto-dial feature has no local-area-code override, and you can't resize the windows to take advantage of larger monitors.

The word-processing module, SmartLetter, is adequate but not quite as robust and fluid as the DB/Write word processor in Control Classic and Colleague 2.

PowerTrax appears to have a lot of things going for it, and with a

Colleague 2

Colleague 2 is the slickest-looking package in the group. It sports a clean, attractive interface that makes using it a visual pleasure, so it's perfectly suited for the graphic designers, photographers, and other creative-industry people for which it's designed.

The program takes a comprehensive approach to prospecting and maintaining clients. It includes Calendar, Mail Merge, Bids, POs, Invoicing, Receivables, and Checking Account Management functions. Colleague 2 could even

little improvement, it could rival the others for the top spot.

Soft Solutions, Inc., 2900 Chamblee-Tucker Road, Building 12, Suite 200, Atlanta, GA 30341; (404) 457-9400. Version 1.1. $495; multiuser packs available.

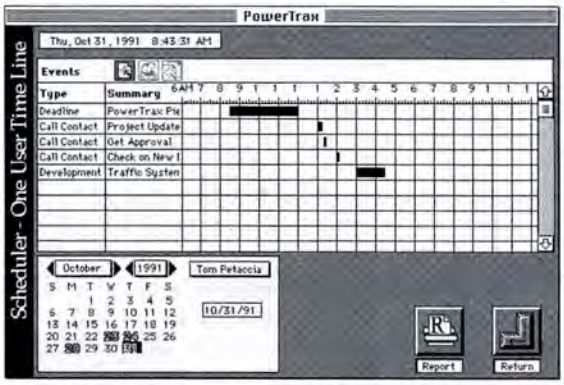


Figure A: PowerTrax includes a handy time-line calendar feature that lets you preview or review a day's activities on an individual (shown) or group basis.

provide the core functions of an entire business operation for small to midsized businesses.

Colleague 2 centers on the calendar that automatically appears when you launch the program (see Figure 2). Clicking on a day brings up its scheduled appointments. In addition, you can have non-time-specific phone ticklers and other notes appear in separate windows. Reminders and comments are carried over from day to day until you manually delete them.

The rest of the package comprises four modules: Clients, Jobs, Checks, and Reports. Entering and locating all data is easy, thanks to the clarity of the entry screens.

The Client entry screen is composed of two pages. The first consists of standard business-card information plus special Keyword and Request lists and activity notes. All calendar events are posted to the activity notes automatically. Colleague 2 also allows multiple contacts ("associates") per client. Other packages do that too, but only Colleague 2 lets you tag more than one contact to be on a mailing list — quite a time and space saver. The second page contains any user-defined fields.

Job Tickets (see Figure 3) can be invoiced items, bids, or purchase orders. You can change a bid to an invoice without creating a new Job Ticket. In such a case, an invoice can mean a job in progress as well as a finished job. A job can be entered when it's first assigned, with charges added as they're incurred.

Product or service items, such as hourly rates or outsourced purchases, can be added to a products list, which contains Product Codes, Description, Vendor, Cost, Selling Price, Profit Margin, Commission Rate, Amount in Inventory, and Notes. Once entered, items can be quickly added to any job ticket by picking them from a products list.

The checking module, although it's not an accounting application, offers a nice selection of features. It handles multiple checking accounts, a Chart of Disbursement Accounts (expense categories), a Reconciliation Summary (which compares your account balance with your bank statement), and General Ledger and Cash Journal reports.

You enter information for deposits, checks, and cash withdrawals in the same window. Checks can be printed on laser printers or on an ImageWriter with Deluxe check form style #091192. Even the most bookkeeping-phobic user will find Colleague 2 a painless way to keep track of cash flow.

Colleague 2 lacks the strategic-planning and automated-follow-up routines of its 4D sibling, Control Classic, but it does have the same formula, reporting, labeling, and charting features and implements them in virtually the same



Figure 2: Colleague 2 sports the slickest and most attractive interface of all the contact managers. Through its simple and elegant calendar, you access all the program's main functions, including the integrated checkbook.

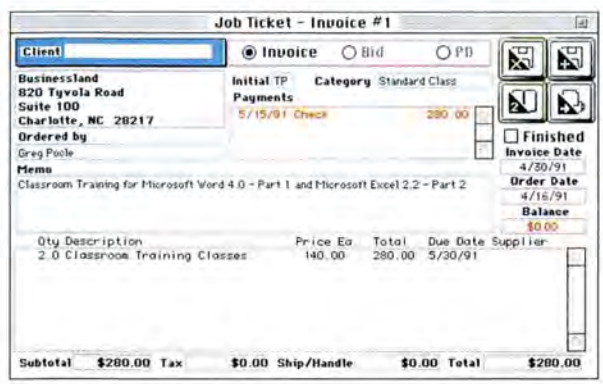


Figure 3: Colleague 2's Job Tickets incorporate all charged items and reflect payments made on the invoice.

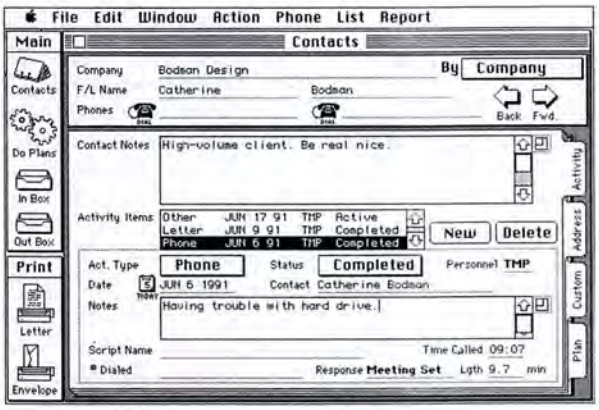


Figure 4: Contact Ease's Activity card helps you record all your contact interactions. You can label an activity as Phone, Letter, Meeting, or Other through the Act. Type pop-up menu.

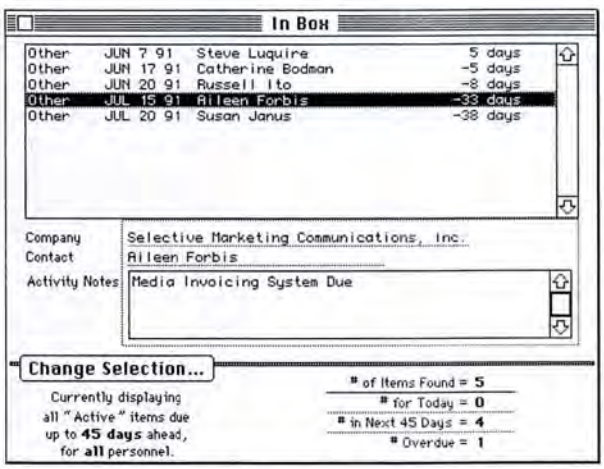


Figure 5: Contact Ease's in box gives you an easy-to-read list of active items that shows you who and what needs attention.

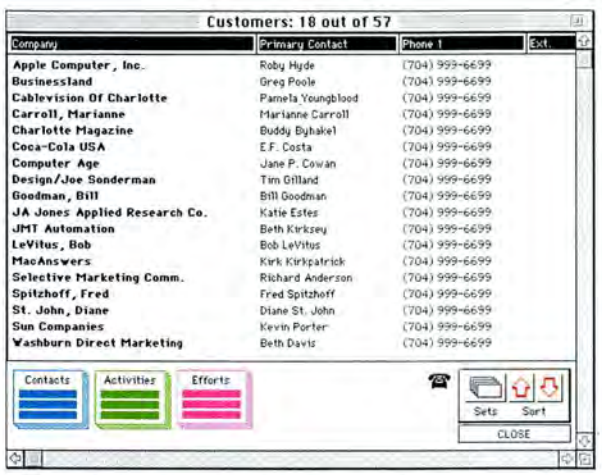


Figure 6: Control Classic's big advantage over Contact Ease is its ability to display your clients in a list, as shown here.

way. Colleague 2's developer also recently abandoned 4D Write in favor of DB/Write as the package's word-processor.

The documentation is a good reflection of the program: It's attractively organized and presented. For those looking for a universal approach to running a business, Colleague 2 is definitely worth major consideration.

Contact Ease

Developed by Westware and built on the Omnis 5 database program, Contact Ease is an extremely easy to use yet sophisticated contact manager.

Its unassuming design centers on four tab cards — Activity, Address, Custom, and Plan — for each contact. Address contains basic business-card information. Custom has user-defined fields that meet either an individual sales rep's or a company's needs.

After the initial input or importation of company data, most of the focus is on the Activity card (see Figure 4), where all interaction with the contact is entered. For each activity, you record the date, time, duration, status (active, on hold, completed), notes, follow-up action, and other information. All active items are automatically placed in your in box (see Figure 5). You can quickly see who needs attention by clicking on the In Box button.

The Activity, Address, and Custom cards alone would make Contact Ease a good product, but the advantage of this program is that it's designed so that users set the wheels in motion and then let Contact Ease do the rest.

Users can create Keep in Touch Plans, which are nothing more than outlines of the steps necessary to complete a sale. A Step usually consists of making a phone call or sending a form letter. Depending on the contact's response to this (which users enter on the Plan card), Contact Ease automatically moves to the next logical step. When you issue the Do Plans command, all applicable letters to be printed are sent to the out box and all phone calls to be made are sent to the in box. You can print all the day's sales and follow-up letters in one easy step, with a single mouse click on the Out Box button.

The built-in word processor incorporates a very easy mail-merge menu that makes creating personalized form letters a snap. These letters are maintained within the database and can be merged to an individual or group of contacts, whether or not they are part of a plan.

The Scripts feature lets you create a series of dialogues and questions to help with telemarketing sales efforts. Contact Ease also provides a nice selection of lists and reports, which can be customized via a dialog box.

The most frustrating thing about Contact Ease is that search results cannot be displayed as a list. When you conduct a search, you see only the first record that meets the criteria you've set. You must then issue Find Next commands to take you through the rest of the found items. Other minuses include the inability to change the addressee font (Courier) on an envelope or label and the lack of color and

a shipping-label option. Also, some users may find the input screens a little cramped. However, these problems are relatively minor compared with the overall sleekness and simplicity of the program.

Documentation consists of a slim, clearly written 107-page manual. Beginners should have no trouble getting Contact Ease running quickly.

For sales professionals who want a program that concentrates on developing customers, Contact Ease is ideal.

Control Classic

Control Classic is a pure lead processor, a streamlined subset of Control II, Diamante Software's 4th Dimension-based lead-tracking, order-entry, and invoicing package.

Control Classic is just like Contact Ease — only different. It offers virtually the same feature set as Contact Ease does but with a slightly cleaner interface. Client information consists of four cards: General, Contacts, Activities, and Custom. Contact Ease dedicates a card to tracking Plan steps, whereas Control Classic incorporates the tracking function into its Activities card. Control Classic uses the Custom card to list multiple contacts (names) from a company — something Contact Ease doesn't offer.

The big advantage Control Classic has over Contact Ease is the ability to show lists of contacts (see Figure 6). In fact, it's the default view. Double-clicking on a line in a list brings up the corresponding client card. You can create sets that show a select list of clients, but the selection isn't

Table 1: Choosing a Contact Manager

	Pros	Cons	Ideal Users
Client 2.0	•Inexpensive. •Highly customizable.	•Minimal feature set. •No word processor. •Awkward import and export capabilities. •No color.	•Salespeople on a budget or people looking for a detailed address book.
Colleague 2	•Clean interface. •Job Tickets. •Checking accounts. •Excellent mail-merge.	•No automated plans.	•Organizations looking for a well-rounded business-management system.
Contact Ease	•Simple interface. •Automated plans. •Mail-merge.	•No display lists. •Can't change envelope font. •No color.	•Salespeople who want a fast and easy way to develop and maintain customers.
Control Classic	•Automated plans. •List views. •Tracking of marketing efforts. •Excellent mail-merge. •Formulas.	•Multivolume, error-prone documentation. •Indirect way of accessing in/out boxes.	•Salespeople willing to trade ease of use for sophisticated features.
Market Master	•Totally automated customer development.	•Long setup time. •Weak mail-merge.	•Organizations that want a completely automated sales system.
QPID	•Automatically presents daily scheduled events when launched. •Total job tracking. •Personnel files.	•No automated plans. •No word processor. •Confusing number of categories.	•Organizations that want a single program to track prospects, clients, employees, and jobs.
TeleMagic	•High speed. •Familiar notepad environment. •Selection filters. •Easy order entry.	•No formatting in word processor. •No automated plans. •No choice lists. •Large number of files needed.	•Sales professionals looking for optimum speed and free-form text entry.

dynamic — if you create a set to show only clients and later add new clients, the set won't include the new entries when you call it up. You have to reselect the list and create a new set.

Another way to manipulate groups of records is via Control Classic's use of 4D's Formulas feature, which lets you do everything from converting case to resetting follow-up dates and more.

As with Contact Ease, Control Classic's strength is the ability to develop automated Processes for developing prospects into customers. Scheduled phone calls and form letters are automatically placed in your in box or out box (respectively) when you issue the Update Processes command. Control Classic also has another nice feature: Efforts. Efforts are marketing activities — such as direct mail, ads, and brochures — you use to attract prospects. With Efforts, you input the expenses associated with a promotion, for example, and then track the response. The result is a handy cost analysis on the effectiveness of the promotion in terms of response and sales.

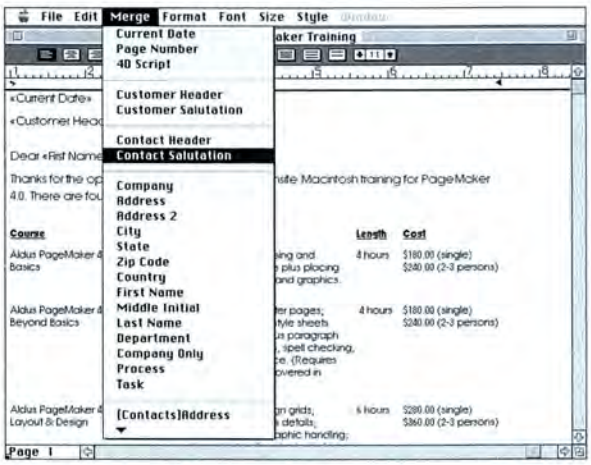


Figure 7: Both Control Classic and Colleague 2 incorporate DB/Write, a self-contained, full-featured word processor that creates form letters.

For word processing/mail-merge, Control Classic incorporates DB/Write (see Figure 7), a full-featured writing tool for creating form letters and other correspondence (previous versions used ACIUS' more sophisticated — and somewhat more cryptic — 4D Write). Any Control Classic field can be merged anywhere within a Merge document.

Control Classic includes other standard 4D goodies such as a comprehensive reports generator, custom label maker, and graphing tools. All are outstanding and provide a wide range of flexibility.

Control Classic's Achilles' heel is its documentation, which is divided into three manuals: the main reference; the supplement, which incorporates new, updated, and corrected information since the 1.0 release; and the *Diamante Language Reference*, which covers creating formulas and custom scripts. Plus, some misplaced screen dumps depict screens from Control II instead of Control Classic. The result is a lot of switching back and forth that creates a little confusion and a good deal of frustration. Hopefully, the manuals will be consolidated in a future release.

There are also a few minor annoyances in using the package. Control Classic makes you go to the Splash screen (the opening screen) to check your in/out boxes as well as to perform an Update Processes procedure.

For salespeople who want the convenience of lists, multiple contacts per client, and the ability to track promotional activities and who can put up with wading through the manuals and a tiny bit of awkwardness, Control Classic is an excellent choice.

Market Master

Breakthrough Productions used Double Helix to create Market Master, which takes a highly automated approach to developing sales.

The prerequisite for using Market Master is to plan ahead. For this program to be truly effective, you need to plot out your sales strategy in advance.

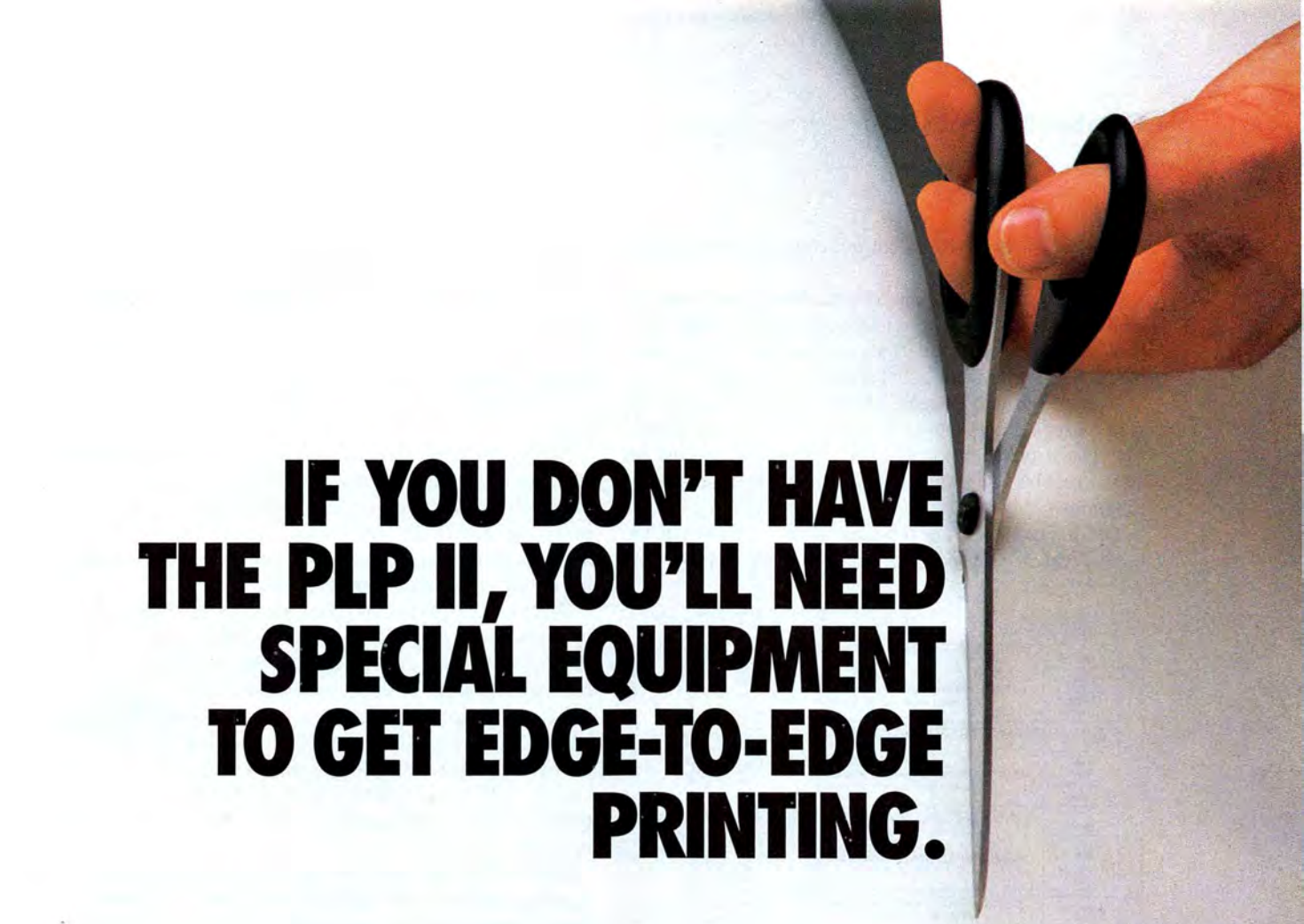
As with Contact Ease and Control Classic, creating a strategy is very similar to writing a computer program based on IF/THEN/ELSE statements (see Figure 8). In the case of an unsolicited lead, the strategy might be as follows: Step 10: Send introduction letter with brochure. If lead doesn't respond in ten days, go to Step 20: Make phone call. If lead does respond and requests more information, go to Step 30: Send follow-up letter with information. If lead orders the product, go to Step 100: Take order info, and send thank-you letter.

Obviously, there can be numerous other steps in between — the more you anticipate, the better. However, you can add or subtract steps and form letters at any time. There are also two classes of Codes you can create to streamline the entering of various inquiry types and products requested. All this takes time up front, but it pays off in the long run. And that brings us to the beauty of Market Master.

Once it's set up, all you have to do is enter (or import) new leads and take the initial step — Market Master takes over from there. Each time you log in, you can see how many letters and calls are scheduled for that day and the week ahead. All form letters (with envelopes or shipping labels) can be printed with a single command.

Market Master can also generate several preset data and summary reports. There is no custom-report generator, but Market Master's preconfigured reports covered everything we could think of.

On the negative side, the setup and the menu structure are confusing, especially for novice users. Market Master has the weakest mail-merge function of the group — the only variable is the addressee. The body of the letter itself cannot incorporate any field data or tabs. Also, the Autodial feature



IF YOU DON'T HAVE THE PLP II, YOU'LL NEED SPECIAL EQUIPMENT TO GET EDGE-TO-EDGE PRINTING.



If you want a printer that's a cut above the competition, look no further than the $999 Personal LaserPrinter™ II (PLP™ II) from GCC Technologies.® GCC's exclusive edge-to-edge printing gives you the power to produce larger graphics, flow charts, and much more. With other printers, like the Apple® Personal LaserWriter® LS, you're forced to cope with margins that confine your graphics and narrow your options.

Edge-to-edge printing is just one of the features that set the PLP II apart from the pack. Other features include:

- **PostScript upgrade.** Provides an upgrade path to PostScript® and AppleTalk® networking.
- **Greater scaling capabilities.** Scales from 25% to 400% in 1% increments, compared with the Personal LaserWriter LS, which is limited to 50% and 75%.
- **Straight-through paper path.** Ensures wrinkle-free printing of heavy stocks, envelopes, labels, etc.
- **New! Background printing.** Lets you get back to work on your computer faster, and allows sharing using AppleShare® with System 7.0.
- **Faster print time.** Prints faster than the Personal LaserWriter LS. In fact, *MacUser* (May 1991) found the PLP II to be 20% faster than the Apple Personal LaserWriter LS on their Microsoft® Word test document, 40% faster on their MacDraw® II test, and twice as fast on their Excel test.
- **On-screen page preview.** Saves time, toner and paper.

Of course, the PLP II also features the unmatched reliability and innovation that go hand-in-hand with the GCC Technologies name. It's the name to count on when you're looking for a high-quality, affordable laser printer. And there's no margin for error.

Easy Ordering. 800-422-7777, extension 285.

To acquire your new PLP II, simply call us toll-free, and we'll give you the name of the GCC Technologies dealer nearest you. Or order direct from us, with a 30-day money-back guarantee and $9 overnight delivery.

GCC TECHNOLOGIES

Peripherals With Vision™

© 1992 GCC Technologies, Inc. All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements.

CIRCLE 162 ON READER SERVICE CARD.

22102N

doesn't let you bypass the local area code or set outside-line access.

Breakthrough has broken Mac norms by colorizing the menu bars (gray) and menu text (red). The developer says that this is so users can tell if they're in Market Master under MultiFinder or System 7, but it's still a hair tacky.

Market Master Manager, which comes with all but the single-user version, lets sales supervisors reassign territories, check on who is and isn't making follow-ups, get sales totals by sales rep, and perform other administrative functions.

The manual, like the program itself, is good but too methodical. If you like to proceed step by step by step,

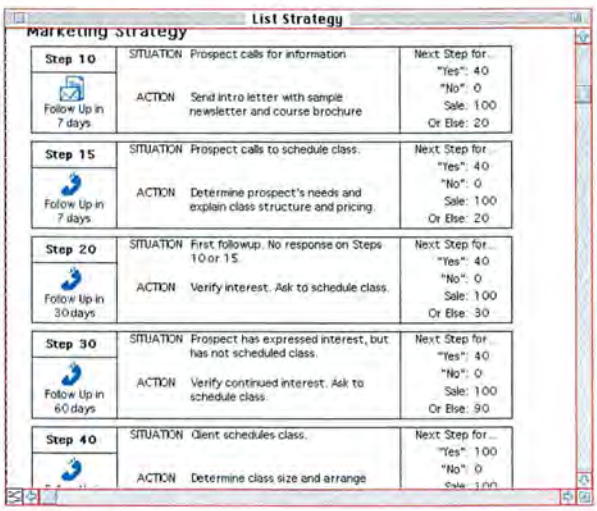


Figure 8: Market Master takes a rigid stepwise approach to developing a sales plan. The required setup time is considerable, but once your plan is complete, keeping up with sales prospects is automatic.

you'll appreciate Market Master's structure, in both documentation and program.

QPID

Another 4D product, QPID, from GT Omnicom, wins the award for having the best manual. It's clearly written and organized, so people who have never used a database program before will quickly learn database concepts and understand how QPID's features relate to them.

Like Colleague 2, QPID takes an enterprisewide approach to sales management and is more geared to service industries than to manufacturing (although both packages can easily be configured to handle nonservice businesses). QPID doesn't have Colleague 2's checking features; instead, it has robust contact- and employee-management tools, including personnel files and time slips (see Figure 9).

The program is divided into the following 15 categories: Clients, Contacts, Incoming Messages, Quotes, POs, Invoices, Employees, Dockets, Items, Services, Suppliers, Time Slips, Tasks, Schedule, and Events.

When launched, QPID automatically presents a list of events scheduled for the day. The Schedule screen displays a calendar, where you can view your events or those of a coworker as well as events for a particular day, week, month, quarter, or year — or all the events. QPID color-codes events to indicate carried-over, present, and future items.

All the entry screens are clearly organized and incorporate standard information in their respective categories. A nice touch on all the list screens is a two-letter-keyed alphabetical index bar (A-B, C-D, and so on). Clicking on a two-letter index item immediately gives you a subset list of files beginning with either of the two letters.

What makes QPID stand out in the crowd is its ability to incorporate the elements of complete job or project tracking. Service items, tasks, suppliers, and employee-billing rates are all intertwined and can be assigned to a docket, or individual project ticket. Employees have weekly time slips on which they enter the hours spent on various projects. At the end of the week, employees simply click on the Post to Docket button and charges for all applicable projects are updated. Outside purchases related to a project are assigned in the same way.

QPID offers the same formula, reporting, labeling, and charting features as the other 4D products do. Unlike the others, however, it does not include 4D Write or any other word-processing/mail-merge facility. Instead, GT Omnicom is committed to making its product System 7-friendly, so QPID's next major upgrade will include publish-and-subscribe, which will dynamically link data to any System 7-savvy word processor. In the meantime, records can be exported to another program for mail-merge.

QPID is the only product that allows users to preview and change the import order of fields without starting from scratch — a great time saver.

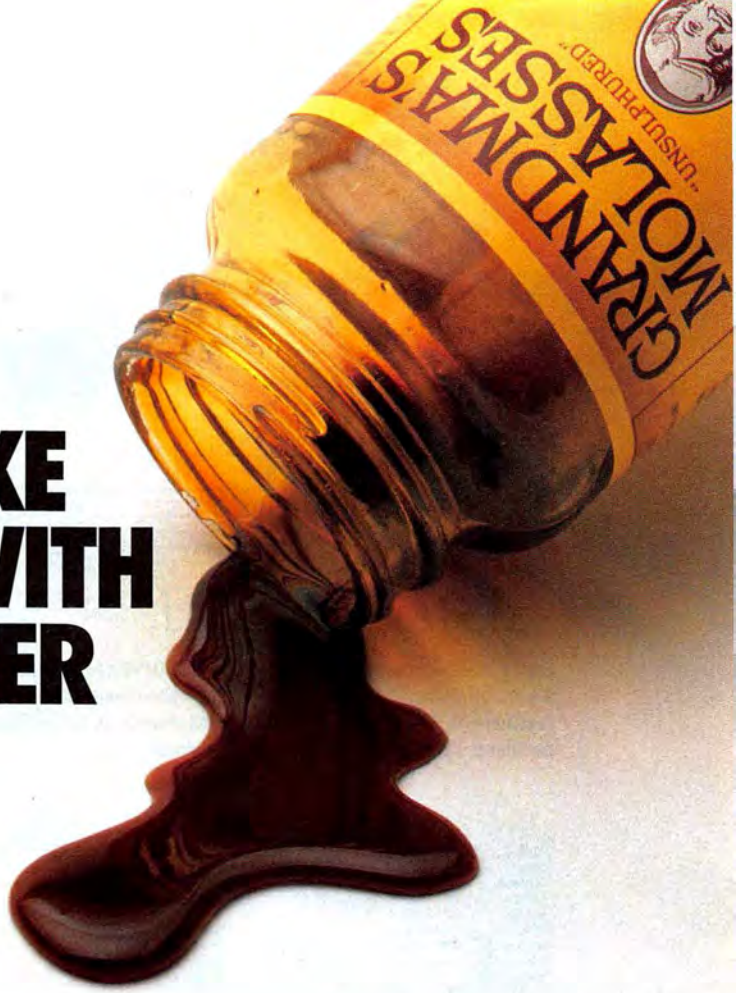
If there's a problem with QPID, it's that it may be overcategorized. There were a few occasions when we weren't quite sure where to go for what. New users may feel lost until they get accustomed to the program's terminology and topography.

It's not as polished as Colleague 2, but QPID offers a different and equally attractive feature set. For those looking for a way to automate projects and personnel records as well as prospect and client activities, QPID may be just the ticket.

TeleMagic

Imagine having a Rolodex-style file of very big cards on which you can write all you need to about each contact. Combine this feature with the powerful FoxBASE search-and-sort engine, and you have TeleMagic, a product tailored to the fast-paced, everything-doesn't-always-fit-in-a-simple-category world of most sales professionals. The Mac version of the popular DOS product is lightning fast,

DOES IT SEEM LIKE INKJETS PRINT WITH SOMETHING OTHER THAN INK?





Waiting for an inkjet printer to print can be a pretty sticky situation. Fortunately there's a speedy alternative: the Personal LaserPrinter™ II (PLP™ II) from GCC Technologies.® How fast is the PLP II? Try four to eight times faster than inkjet printers. And at just $999, it's also a very fast seller.

Speed is just one of the many features that help the PLP II pull away from the pack. Other features include:

- **Clean, dry output.** Unlike inkjet output, PLP II output never smears when wet.
- **High quality laser print.** Produces superior type clarity and sharper graphics.
- **Edge-to-edge printing.** Allows for larger graphics, flow charts, and more without the limitations of margins.
- **PostScript upgrade.** Provides an upgrade path to PostScript® and AppleTalk® networking.
- **Longer engine life.** Lasts at least three times longer than inkjet printers.
- **New! Background printing.** Gets you back to work on your computer faster, and allows sharing using AppleShare® with System 7.0.

Of course, the PLP II also features the unmatched reliability and innovation that go hand-in-hand with the GCC Technologies name. It's the name to count on when you need high-quality, affordable laser printing. And you need it fast.

Easy Ordering. 800-422-7777, extension 247.

To acquire your new PLP II, simply call us toll-free, and we'll give you the name of the GCC Technologies dealer nearest you. Or order direct from us, with a 30-day money-back guarantee and $9 overnight delivery.

GCC TECHNOLOGIES
Peripherals With Vision™

© 1992 GCC Technologies, Inc. All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements.

CIRCLE 163 ON READER SERVICE CARD.

22102M

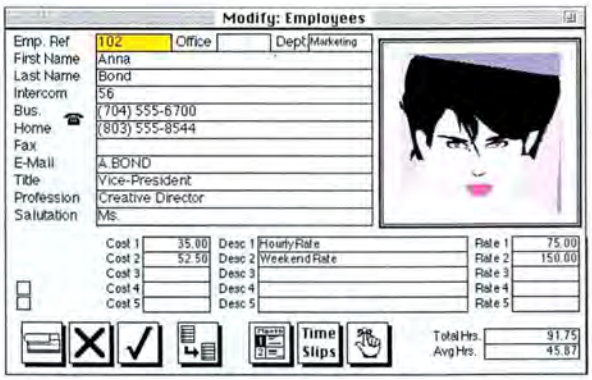


Figure 9: Unlike many of the other packages, QPID doesn't include a word processor; but it does include employee-management functions. QPID's Employees screen keeps records on all pertinent personnel data and includes employee pictures.



Figure 10: Because it's built on FoxBASE+/Mac, TeleMagic beats the other packages' speed. Its plain but comprehensive screen gives you a contact's complete history at a glance.

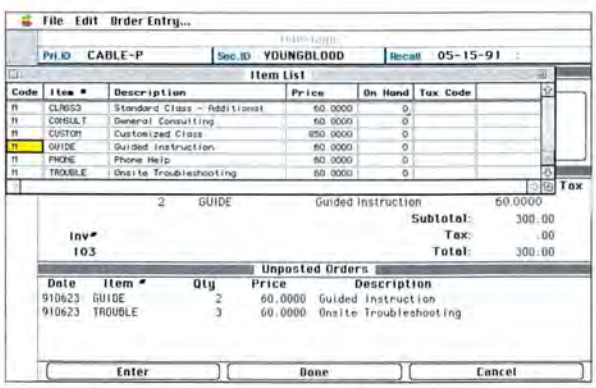


Figure 11: You can write up orders in a flash with TeleMagic by choosing predefined products and services from a handy list.

extremely flexible, and very powerful.

TeleMagic uses a notepad metaphor. Clicking on the notepad on the Main Contact screen (see Figure 10) automatically adds a new line that's date- and time-stamped, in which you enter any particulars for that contact. This note field is automatically generated when you finish a call initiated with the auto-dial feature. The auto-dial feature adds the option of letting you enter a user-defined response code (Busy, Sale, Awaiting Funding, and so on).

You then have the option of entering the follow-up, or Recall, date. A slight inconvenience is that you have to enter leading zeros — 07-08-91 instead of 7-8-91, for example. However, TeleMagic makes up for this with its own date shorthand. You enter *5D* for five days from now, *1M* for one month, and so on. TeleMagic calculates the proper date and enters it in the Recall field.

You can quickly access subsets of the data by creating filters to select groups of records such as prospects only or specific area codes. None of the other products have this useful feature. TeleMagic also lets you define as many as four custom indexes, which results in very fast search-and-sort patterns.

Once a sale has been made, you can use TeleMagic's Order Entry screen to write up an invoice (see Figure 11). Items (products, services, or comments) are stored in the Item List, which contains the item code, description, unit price, amount in inventory, and tax code. You can even have special codes for items such as individual client discounts. These are printed on one of two customizable invoice forms.

In addition to contact-specific screens, three nonspecific notepads — Goals, Appointments, and ToDo — let you enter free-form text without linking the text to a particular contact. A calendar is also available for entering appointments. Unfortunately, the Calendar and Appointment notepads are not linked. Scripts are also maintained in a notepad format and can be accessed from the Main Contact screen.

TeleMagic's Reports Generator includes a wide range of functions and formulas for producing analytical reports in addition to the standard directories, listings, and labels.

The manual, although a bit disjointed, does an excellent job of relating to sales professionals by providing everyday examples of how salespeople normally work and explaining how TeleMagic handles that type of situation.

Surprisingly, there is no way to automate plans or strategies in TeleMagic. It also doesn't have an in-box feature, but users can create a filter to select records that have the current day's Recall date.

It's easy to spot TeleMagic's DOS roots. No choice lists. No font formatting in the mail-merge word processor. The real giveaway is the 30-plus-file minimum actually needed for TeleMagic to run — and that doesn't even include any reports or form letters. But its performance flat-out blows away any database program in the group.

LEAN, MEAN, POSTSCRIPT MACHINE.



THE $1599 BLP ELITE.

Finally, the first affordable PostScript® printer designed specifically for Macintosh® users. It's from GCC Technologies,® and it's called the BLP Elite.™ A printer so advanced that it offers exactly the features you're looking for, at a price you've never seen before. Just $1599.

That's a full $1000 less than Apple's Personal LaserWriter® NT. But that doesn't mean the BLP Elite has less to offer. In fact, the BLP Elite is packed with more features you want, like true Adobe® PostScript and built-in AppleTalk® for sharing over a network. There's also edge-to-edge printing for super-sized spreadsheets and banners, and a straight-through paper path for printing wrinkle-free envelopes and labels.

The new BLP Elite is a faster printer, too.

In fact, with its 16.67 MHz processor, it's one of the fastest PostScript printers in its class. About 40% faster than Apple's Personal LaserWriter NT.

But what makes the BLP Elite a more sophisticated, more affordable printing machine is its breakthrough technology, engineered at GCC.

At the heart of the BLP Elite is the most compact, cost-effective PostScript controller board ever designed — half the size of the Apple® Personal NT's, with one-third the number of chips.

A compact controller means two things: fewer components and lower manufacturing costs, which translates to exceptional product reliability and a significant cost savings for you.

The New GCC "Frequent Buyer" Program.

And now, during our "Frequent Buyer" program (ends March 27, 1992), when you purchase a BLP Elite or any other GCC PostScript laser printer, you'll receive GCC "Bonus Dollars" worth up to $200! When you purchase a second GCC product of $500 or more, apply your GCC "Frequent Buyer Bonus Dollars" to your purchase, and experience savings like never before.

Easy Ordering. 800-422-7777, extension 357.

The $1599 BLP Elite PostScript printer is available from your Authorized GCC Dealer or directly from GCC. Call 800-422-7777, extension 357, for the name of the dealer nearest you or to place your order directly with us. Either way, you'll find it's painless to go lean and mean with the new BLP Elite.

GCC TECHNOLOGIES
Peripherals With Vision™

© 1991 GCC Technologies, Inc. All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements.

CIRCLE 164 ON READER SERVICE CARD.

22102H

The Big Picture

Because all these packages are database products, they all have, at the very least, good file-searching tools. Only Client 2.0 and Contact Ease can't provide results in a list. With the exception of Client 2.0, all import and export files quite easily. All have an auto-dial feature, although Market Master doesn't support modem dialing. Only Client 2.0 and Contact Ease don't include color.

Except for Client 2.0, the programs are available in single- and multiuser packages. The multiuser option lets companies have a central database for optimum uniformity and consistency while letting individual reps maintain flexibility.

Contact managers are most productive when they're always accessible, so it's best if you have enough memory to run these database programs under MultiFinder or System 7. All are System 7-compatible.

Because the companies involved with these products are relatively small, they are extremely responsive to users, which means that they put out a lot of updates. This is great for users but hard on reviewers. All of these packages had at least one update during the review process, and some had two or three. Therefore, it's a good bet that by press time, just about all the products will have another version out — with added capabilities and enhancements.

Everyone's a Winner

This is one of those rare win/win situations in software. There are no losers in this bunch. The differences are in the types of features offered and how they're implemented. Users have the luxury of choosing the interface most comfortable for them.

If we had to make a choice, we would give *a very slight edge* to Control Classic, based on its overall feature set and pricing, with Colleague 2, Contact Ease, and TeleMagic right on its heels. However, the shades of difference among most of these products are very slight.

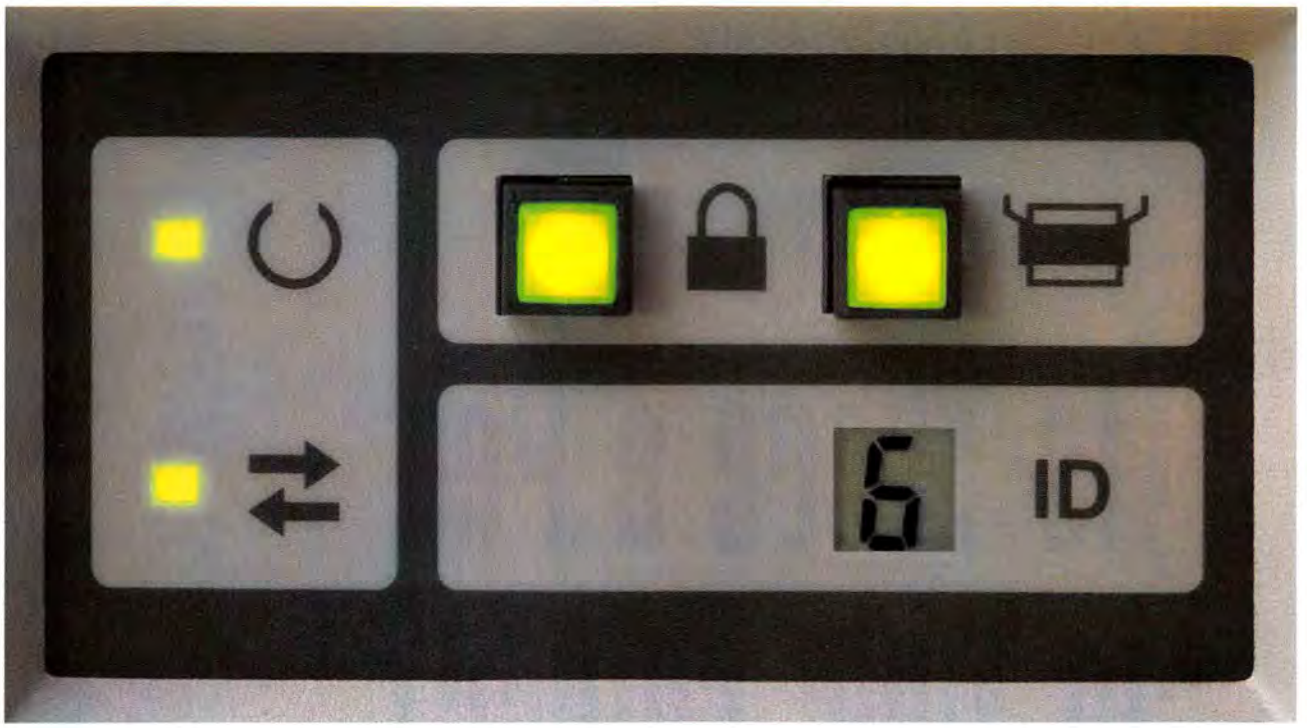
Tom Petaccia runs Hired Gun, a Mac-consulting/development business in Charlotte, North Carolina.

Table 2: Contact Managers

				
	Client 2.0	**Colleague 2 2.92**	**Contact Ease 1.2.2**	**Control Classic 1.1**
	$$$	$$$$½	$$$$½	$$$$½
List price	$195	$395; $175 per additional user	$395 (up to 5 users); $775 (20 users)	$595; $150 per additional user
Company	Trendware Corp. P.O. Box 2285 Huntington, CT 06484 (203) 926-1116	Colleague Business Software 10000 Research Blvd. Ste. 210 Austin, TX 78759 (800) 926-9965 (512) 345-9964	Westware, Inc. 10148 Diamond Head Ct. Spring Valley, CA 92077 (800) 869-0871 (619) 660-0356	Diamante Software 11651 Plano Rd. Ste. 160 Dallas, TX 75243 (800) 223-2165 (214) 341-6711

Table 2: Contact Managers, continued

			
	Market Master 3.0	**QPID 1.4**	**TeleMagic 12**
	$$$$½	$$$$	$$$$½
List price	$395; $595 (4 users); $495 (multiuser add-on)	$695 (single pack); $2,459 (5 pack)	$495; $995 to $9,995 (for network version)
Company	Breakthrough Productions 210 Park Ave. Nevada City, CA 95959 (916) 265-0911	GT Omnicom, Inc. 481 Queen St. E. Toronto, Ontario M5A 1T9 Canada (416) 365-1436	Remote Control 5928 Pascal Ct. Carlsbad, CA 92008 (800) 992-9952 (619) 431-4000



FOR MORE INFORMATION ON ULTRADRIVE *X*, CONSULT OUR KNOWLEDGEABLE PANEL.

If you're looking for unmatched reliability and convenience in a hard disk, then meet the new UltraDrive *X* series of high-capacity hard disks from GCC Technologies®.

The new UltraDrive 1000*X* and UltraDrive 650*X* have a technologically advanced front control panel. With this panel, you'll have easy access to convenient features like a switch that lets you terminate your hard disk with the push of a button. You'll also have two LEDs that indicate your disk's power status and whether your drive is reading or writing. There's even an LCD that displays the SCSI ID number up front where it's easy to view.



The panel on the UltraDrive 1000*X* also offers the security of a push button write-protect switch. This protects your data from accidental loss, making the UltraDrive 1000*X* perfect as a file server.

Our UltraDrive *X* series utilizes Seagate® Wren mechanisms, the most trusted name for high-capacity disks. Each hard disk undergoes the tough temperature and shock tests that GCC is famous for. And every UltraDrive is backed by a full two-year warranty.

One-Key System Start.

We've also engineered the UltraDrive *X* series with a unique One-Key System Start™ feature. By simply pushing the power-key on your Macintosh® keyboard, One-Key System Start will automatically switch on your Macintosh computer, your UltraDrive *X*, and one auxiliary device. It even allows you to power down your entire system by selecting "Shut Down."

Valuable Extras.

Your UltraDrive wouldn't be complete with anything less than GCC's UltraWare,™ a complete collection of value-added software the likes of which no one else offers. UltraWare includes GCC Partitions,™ software that lets you partition information within your hard disk for better data organization. Included free with your UltraDrive is MacTools Deluxe,™ a complete disk utilities package valued at $129.

For just $3,999 for the UltraDrive 1000*X* and $2,999 for the UltraDrive 650*X*, you can experience these disks for yourself. We offer internal as well as external versions of UltraDrives, in sizes ranging from 20 to 1000 megabytes. So there's sure to be an UltraDrive to suit your needs.

Easy Ordering. 800-422-7777, extension 489.

The UltraDrive *X* series and the complete family of UltraDrives are available from your Authorized GCC Dealer or directly from GCC. Call 1-800-422-7777, extension 489, for the name of the dealer nearest you or to place your order directly with us.

GCC TECHNOLOGIES
Peripherals With Vision™

Seagate

© 1991 GCC Technologies, Inc. All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements.

CIRCLE 165 ON READER SERVICE CARD.

22102L

Is There a Pen in Your Future?

The pen-based-computing market is heating up, but Apple is keeping its plans under wraps.

BY HENRY BORTMAN

What do you get when you cross a Mac with a pen? Not much. Not yet, anyway.

Pen-based mobile computers are all the talk of the industry. They'll be light. They'll be cheap. They'll be pocket-sized. They'll be connected. They'll be easy to use: Millions of computerphobes will adopt them as indispensable. They'll breathe new life into the flagging computer market. They'll be so . . . '90s.

Nearly every major desktop-computer-hardware vendor has made announcements about its pen plans. Except Apple.

Apple CEO John Sculley has dropped hints that the company is hard at work on hand-held computers with built-in wireless-network connections and with cellular-fax and -paging capabilities. Apple's application to the FCC to reserve portions of the radio spectrum for computer communications indicate that he's serious. Apple's licensing of handwriting-recognition routines and algorithms developed in the USSR by Moscow-based Paragraph JV has also raised a few eyebrows. And rumors abound that General Magic, the company headed by HyperCard wunderkind Bill Atkinson, is involved in similar efforts, developing products that will have multimedia capabilities and a pen-based HyperCard-like interface.

So it's clear that Apple is up to something. The question is, What? Will Apple develop a set of pen extensions to the Mac operating system, as Microsoft is doing with Windows for Pen Computing? Will it license portions of GO's PenPoint operating system for incorporation into the Mac OS? Or will it attempt to build a new alternative pen-based operating system not tied to the Macintosh? The definitive answers to these questions will simply have to wait.

Meanwhile, corporate giants such as DEC, Dell, HP, IBM, NCR, and Zenith as well as new companies such as Momenta and Pi Systems have announced pen-based hardware products or plans to develop them. Likewise, software companies ranging from Borland and



PHOTOGRAPHY: FRED STIMSON



Clockwise from bottom left: NCR's System 3125, Samsung's PenMaster, and the Momenta computer.

WordPerfect to startups such as Ink Development and Slate have announced applications or demonstrated technologies that will run on this hardware.

But there is still a great deal of confusion, and most vendors are hedging their bets. One area in which this is most evident is in the choice of operating environments. The two leading contenders so far are Microsoft's Windows for Pen Computing (PenWindows for short) and GO's PenPoint. Many developers are excited about the object-oriented PenPoint environment, which was designed from the ground up specifically for pen-based applications for mobile workers. PenPoint is attracting the development efforts of creative startup companies, much as the Mac did in its early years. In fact, many Mac veterans are now working at GO or at companies that are committing major resources to PenPoint development.

But it is significant that, with one exception, every hardware vendor that has made a commitment to producing a pen-based computer — and more than 30 vendors have done so — has also made a commitment to supporting PenWindows. Many will support PenPoint as well. Some will support other, proprietary pen-based operating systems.

You can't really argue with their logic. It's a matter of simple economics. There are several million Windows users. For MIS managers already heavily invested in Windows, adopting and supporting Windows for Pen Computing will seem a much less risky prospect than switching to a completely new environment such as PenPoint. And for software developers, especially Windows developers, adding pen support to existing applications will require only an incremental effort, with the potential of high-volume sales in the short term.

Oh, you're wondering which the one holdout is? IBM. Its pen-based offerings will run only under PenPoint.

Pointing the Way

Speaking of PenPoint, by the time you read this, the 1.0 release of this new operating system should be available. (For more information on PenPoint, see "Computing on the GO," March '91, page 202.) NCR, Samsung, and GRiD have all announced computer models that will support both PenPoint and Windows for Pen Computing. NCR began shipping its System 3125 last November. Prices start at $4,765 for a system with 4 megabytes of RAM and no hard disk and at $4,795 for a system with 2 megabytes of RAM and a 20-megabyte hard disk. The Samsung PenMaster will ship with 4 megabytes of RAM and a 60-megabyte hard disk standard and will have a backlit VGA screen that can display 32 shades of gray. This configuration will list for less than $5,000. GRiD's standard-configuration GRiDPAD SL will have features similar to Samsung's PenMaster; pricing had not been set at press time. GRiD has been shipping pen computers that use its proprietary PenRight! operating environment for more than two years now. The SL is GRiD's first computer to support other operating

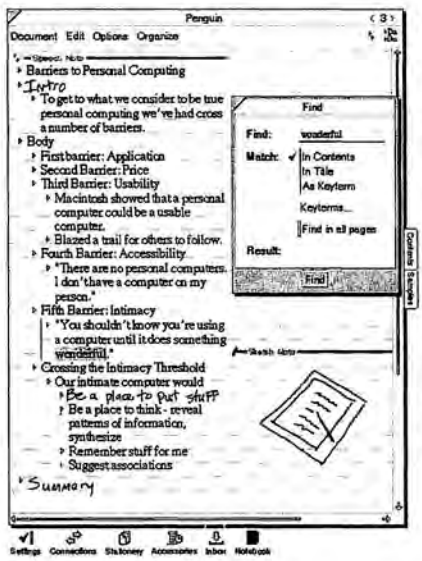


Figure 1: Pensée's Penguin, for PenPoint systems, combines an outliner with freehand sketching capability to create a true electronic notepad. Text can be left as freehand "ink" or translated into ASCII.

environments. Neither Samsung nor GRiD has announced a specific shipping date for its pen units. Several other vendors, including DEC, Dell, HP, IBM, and Zenith have announced support for PenPoint, but none of these companies has yet announced a specific product.

On the software front, PenPoint developers have some new tricks up their sleeves. PenBook, from Slate, is one that should interest Mac users. Although we may have to wait a while to bolt pens onto our Macs, we will at least be able to share with PenBook customers the documents we generate on our Macs. PenBook will translate any document created on a Mac and saved as a PostScript file into an indexed document that can be read, navigated, and annotated on a PenPoint or PenWindows computer. Available in mid-1992, PenBook Author, required for the PostScript-to-pen translation, will sell for $695; PenBook Reader, $99.

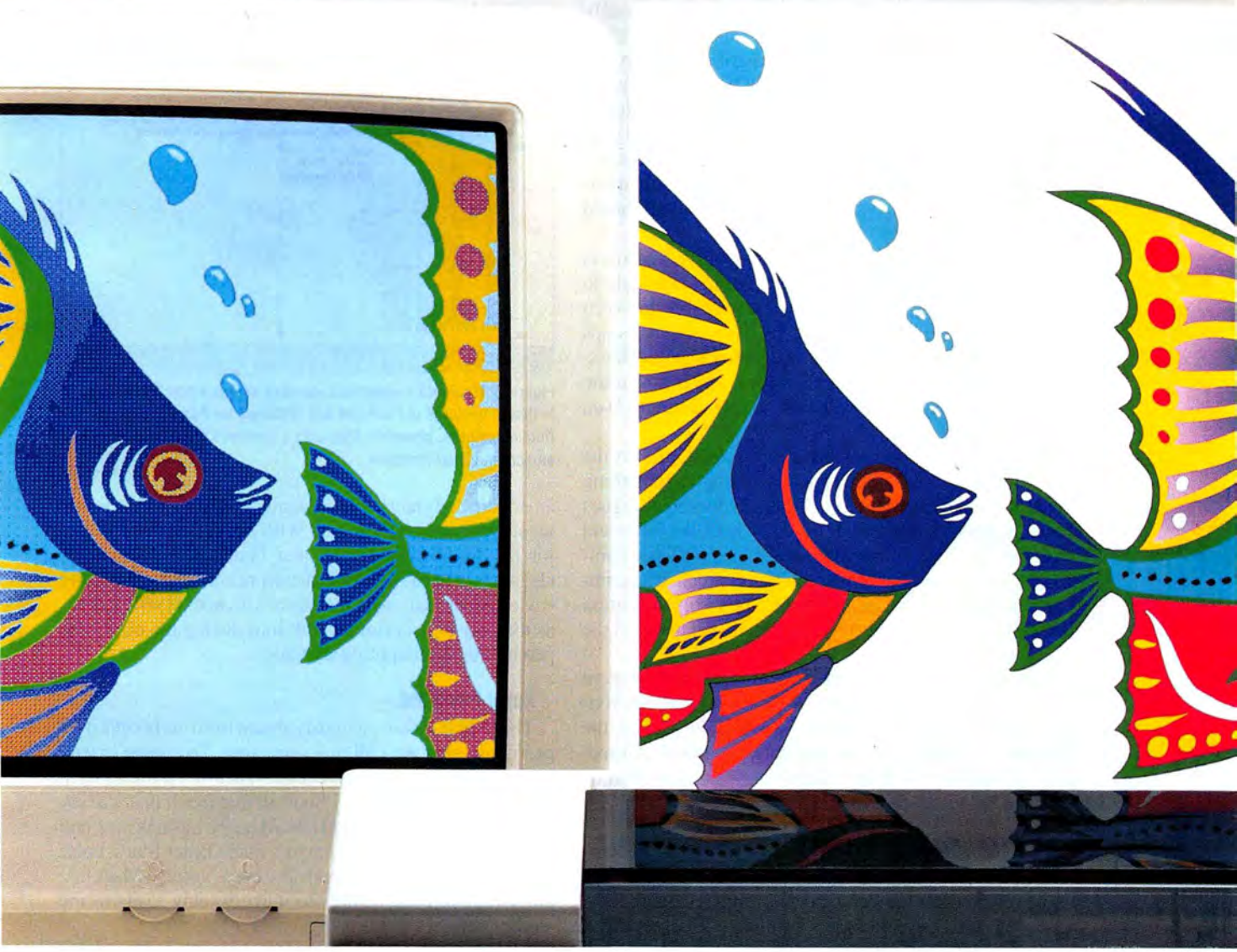
Then there are the true electronic-notepad applications that are ideally suited to pen-based computers. Remember Acta, the popular Mac outliner? Its author, David Dunham, is now working for a startup company called Pensée on a product called Penguin. Penguin is a sketch pad that gives users the freedom to place text-outline and free-form-artwork elements anywhere on an electronic page (see Figure 1). Ink Development is working on a suite of applications that will let users integrate handwritten notes and drawings with images captured by Logitech's FotoMan Digital Camera. And, yes, there will be a spreadsheet application: PenCalc, from Notable Technologies. Many of these products will run exclusively under PenPoint.

Momenta's Decision

One of the more intriguing developments is the release of the Momenta computer, which its creators call a pentop device — a combination of pen and laptop computer. Realizing that pen-based computing is a technology in

See gorgeous color.

Print gorgeous color.



If you've ever wished you could afford to print in vivid color, the new Canon Color Bubble Jet™ printers are for you.

The first thing you'll notice is the brilliant, rich color. That's because both the BJC-800 and the BJC-820 print up to 360 dpi using four snap-in ink cartridges: black, cyan, magenta, and yellow. So you get true black and richer darker shades.

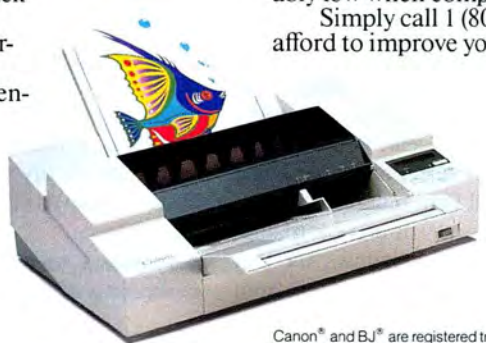
You'll also admire these printers' versatility. They print on virtually any size plain paper up to 11″ by 17″, on transparencies and envelopes.

Now you can be as creative as you want, preparing stunning presentations, graphics, even posters, right in your office. You'll be able to see results and make changes immediately, which saves time and gives you more control.

All these advantages are yours whether you use an IBM® PC or a Macintosh,® because the BJC-800 has a parallel interface and the BJC-820 has a SCSI interface.

You'll even be impressed with the cost. Both printers are a lot less than you'd expect, and the cost per page is remarkably low when compared with most other color printers.

Simply call 1 (800) 848-4123, and see how easily you can afford to improve your image.



Canon

COLOR BUBBLE JET PRINTERS

BJC-800/BJC-820

Canon® and BJ® are registered trademarks and Bubble-Jet is a trademark of Canon Inc. Macintosh® is a registered trademark of Apple Computer, Inc. IBM® is a registered trademark of International Business Machines Corp. The Color Bubble Jet printers will be available the first quarter of 1992. © 1991 Canon U.S.A., Inc.

CIRCLE 22 ON READER SERVICE CARD.

search of an installed base, Momenta has consciously hedged its bets and has produced a transitional hybrid machine. About the same size and weight as a laptop, the Momenta ($4,995) is a full-function DOS/Windows computer. Its screen tilts up for desktop use, and it has a detachable keyboard. Lower the screen so it's flat and grab the tethered pen, and it can be used for pen-based computing, with Windows for Pen Computing or with applications developed in Momenta's own Smalltalk-based environment.

Both environments can run simultaneously, and users can switch between them without rebooting, although no interaction, such as cut-and-paste, is possible between Windows and Momenta applications. The computer ships with basic pen-based word-processing, spreadsheet, address-book, and calendar applications, all of which run in the Momenta environment. It will also have a built-in fax/data modem.

Momenta brings some innovative technologies to the pen-computing arena. The most intriguing is something called a command compass (see Figure 2). Momenta argues that pull-down menus and gestures — both PenPoint and Windows for Pen Computing use gestures for basic command input — require users to think too much. The command compass gives users an immediate visual indication of what actions can be performed on selected items on the screen.

Momenta also provides a unique approach to document retrieval. When users are in the DOS or Windows environment, the standard C> prompt is available. But in the Momenta environment, an alternative method is used. Users assign keywords to documents, which can then be retrieved by a keyword search.

And Then There's Microsoft

Windows for Pen Computing may not have the bleeding-edge excitement of PenPoint, but one thing is certain: If the pen catches on, PenWindows applications will be pervasive. More than 100 software developers, including Aldus, Borland, Corel, Ventura, WordPerfect, and WordStar, have committed to supporting PenWindows. Don't be surprised to see pen support in future releases of the Windows versions of Word and Excel either.

Pen capability is expected to make its first appearance with Windows 3.1 early in 1992. PenPoint's object-oriented-programming model may make software development easy for those starting from scratch, and the time required to add pen support to existing Windows applications will be shorter still. Expect to see many developers shipping PenWindows applications before midyear. PenWindows users will also have a much larger selection of hardware platforms to choose from than will PenPoint users.

In fact, in its early years, the success of pen computing will be measured by the success of Windows for Pen Computing. It is here, with a familiar operating system from

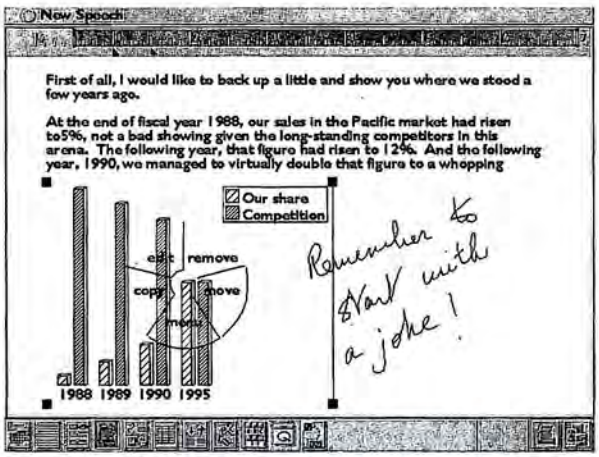


Figure 2: Momenta's command compass serves a function similar to that of gestures in PenPoint and Windows for Pen Computing. Unlike gestures, however, Momenta's compass provides users with on-screen visual feedback.

an established giant in the computer-software industry, that most users will get their start. With Apple out of the picture for the foreseeable future, and PenPoint — for all its elegance — an untested and therefore uncertain computing environment, many MIS managers will choose PenWindows as the way to experiment with introducing the electronic pen into their computing strategies.

Apple Revisited

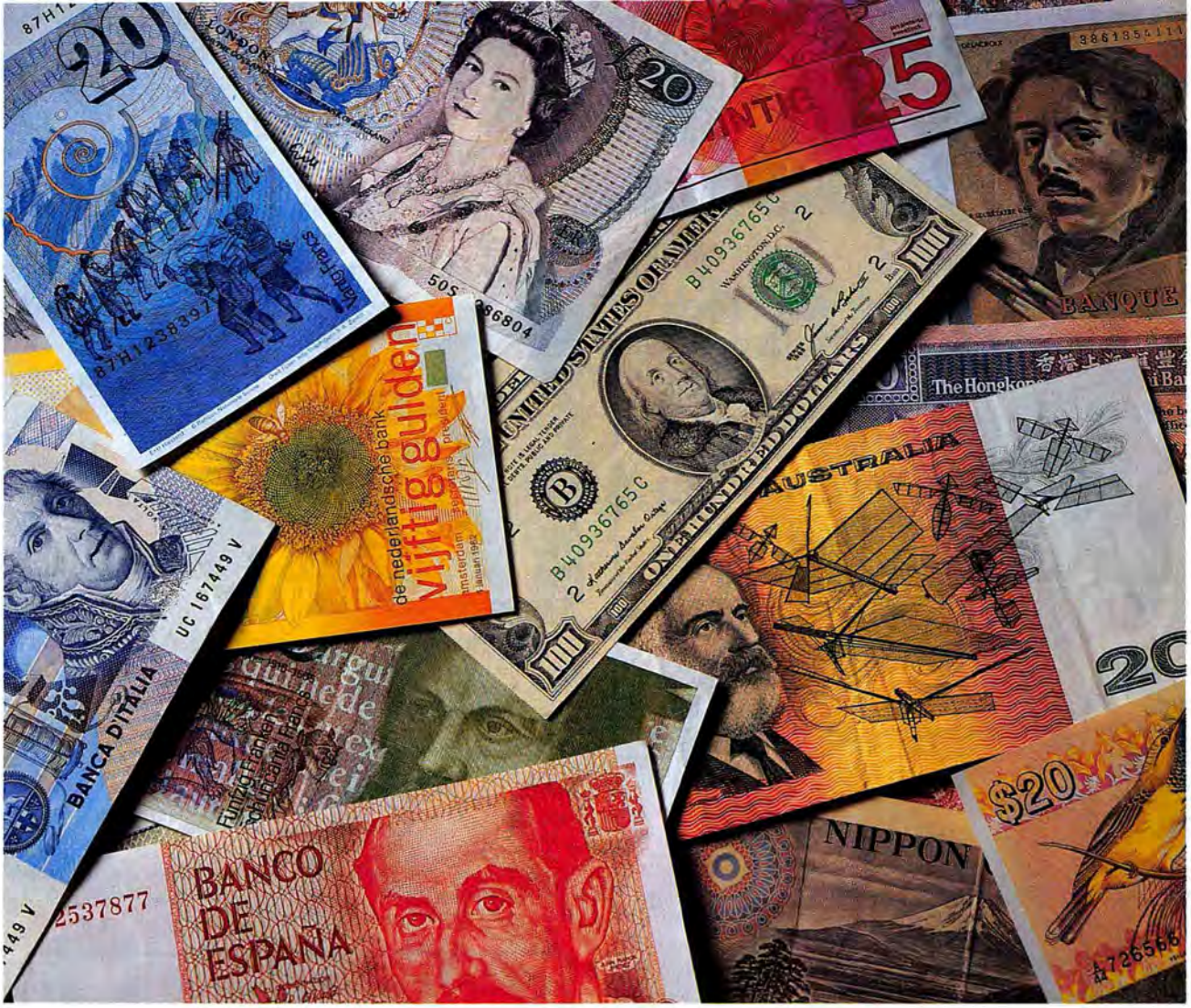
That Apple is conspicuously absent from the hoopla over pen computing isn't all that surprising. To a large extent, Apple has lost its innovative edge. When you think about it, the company hasn't really done all that much that's really *new* since it introduced the 128K Mac, the LaserWriter, and AppleTalk networking. Sure, it's made faster Macs, color Macs, expandable Macs, and now even portable Macs that don't require their owners to make weekly visits to the chiropractor.

All right, I take it back. QuickTime is pretty leading-edge stuff.

Still, for the most part, Apple's product introductions, even its really cool stuff, have tailed the market, not led it. How long had color been around on the PC before the Mac II shipped? Sure, the PowerBooks are great Macs, but aside from *being Macs*, what do they offer that DOS laptops don't? OK, System 7 introduced file sharing, but TOPS has offered peer-to-peer file sharing to Mac users for years.

But — and it's a big *but* — when Apple does get around to doing things, even if they arrive a little late and cost a little too much, it usually does them well. When the Mac, or its successor, finally gets a pen, you can expect it to be as powerful and as easy to use as a pencil and paper.

Henry Bortman, *MacUser*'s technical director, is spearheading a PenPoint development project for MacUser Labs.



RADIUS REDEFINES THE COST OF COLOR.

Introducing the latest in PrecisionColor™ technology from Radius. The most versatile and cost-effective 8 and 24-bit color video cards money can buy. Thanks to our own custom-designed ASIC chips, we can price these new PrecisionColor interfaces so low – our competition is turning green with envy. What's more, these new interfaces work with virtually any color display ever made for the Macintosh. Which means true 24-bit color is now an affordable reality for everyone. ● PrecisionColor 8 ($599) gives you a full 256 colors. PrecisionColor 8X ($899) lets you upgrade to 16 or 24-bit color. Both PrecisionColor 8X and 24X ($1999) also give you the added benefits of on-board acceleration. Regardless of which one you choose, all our PrecisionColor cards allow you to view images in the resolution of your choice – 640 x 480, 1024 x 768, 1152 x 882 and 1152 x 870. And, if you're connected to our new PrecisionColor Display/20, you can switch resolutions on the fly. Leaping from presentation to WYSIWYG to two-page mode without restarting your Macintosh. ● Our multi-frequency PrecisionColor Display/20 works with a variety of both Macintosh and PC video cards. Its built-in microprocessor syncs with the video card to provide the best possible image for your selected resolution. And its extensive controls lets you fine tune the screen for a perfect image every time. ● Call 1-800-227-2795 for the name of the Radius Authorized Reseller who can show you our new PrecisionColor products. At these prices, you can't afford to be without one.



Radius PrecisionColor 24X

radius™

©1991 Radius Inc. Radius, the Radius logo and all Radius product names are trademarks of Radius Inc. For the name of your Radius International Distributor, call 408-434-1010.

CIRCLE 195 ON READER SERVICE CARD.

HARDWARE THAT FITS

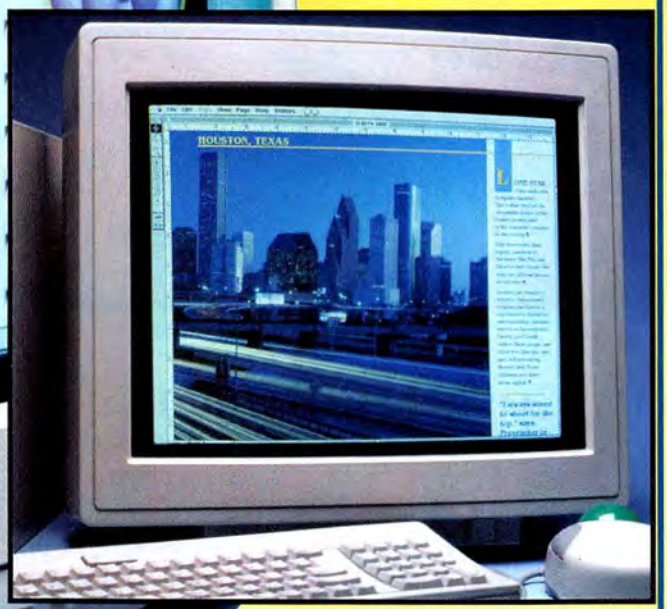
VISA MasterCard



INTRODUCING *the RealTech Trinitron*

AT LAST...THE VALUE-PRICED ACCELERATED 24-BIT, 19" SOLUTION!

$2899



RealTech Trinitron System

The monitor solutions that break the price barrier for 19" Trinitrons!

Our **24-bit system** includes the RealTech RT-24 video card with pan-zoom and extended desktop and G-world support. Socketed for up to 16 Mb of RAM! State-of-the-art engineering. On-board QuickDraw acceleration, 75 Hz vertical refresh rate. View 16.8 million colors at 72 dpi! 1024 x 768 resolution. Our **8-bit system** includes the RealTech RT-8 video card...a great starter system for 19" color!

CPU	*Monitor*	*Price*
Mac II, IIx, IIcx, IIsi*, IIci, IIfx, SE/30, LC, Quadra 700 & Quadra 900	8-bit system	**$1899**
Mac II, IIx, IIcx, IIci, IIfx, Quadra 700 & Quadra 900	24-bit system (accelerated)	**$2899**

**IIsi solution retains PDS slot for the RealTech cache card.*



RasterOps 24XLTV 21" Color System

RasterOps CONNECTION

$5819

The latest in 24-bit technology. Live video and on-board acceleration, 16.8 million colors, 72 dpi, 75 Hz refresh rate. 1152 x 870 resolution. A full two pages of vibrant color!

We've been an authorized RasterOps dealer for 4 years; we support these excellent products with top-of-the-line service and warranties.

ColorBoard 24S	379
ColorBoard 24SI	669
ColorBoard 24XLi	2349
ColorBoard 24STV	1199
ColorBoard 24XLTV	2689
ColorBoard 264SE/30	599
ColorBoard 8LC	599
ColorBoard 8XL	469
ColorBoard 364	679
CorrectColor Calibrator	2019
ImagePak Still Compression	335
TV Tuner	335
14" Trinitron 24-bit	979
19" Trinitron 8XLi	2999
ClearView Classic 21"	1639

Other monitors available. Please call for prices.

Seiko/RasterOps 24-Bit Bundle

$979

High-resolution Trinitron tube...view 16 million shades of color! 640 x 480 resolution, 72 dpi. 14" display has integrated tilt & swivel base. Includes RasterOps 24S video card.

43% brighter than the leading competitor!



Our buying power gives you



WE ONLY SELL NAMES YOU CAN TRUST.

RasterOps
MICROTEK
Real Tech™
TEXAS INSTRUMENTS
Applied Engineering®
ASANTÉ
PLI



RealTech Laser Printer

500% FASTER!

- RISC processor
- 2 paper trays
- 9 pages/minute
- SCSI port

$1995!



RealTech Laser 400

- RISC processor
- 16 ppm (letter size)
- 8 ppm (11x17)
- 300 or 400 dpi

$4495!

SEE OUR OTHER AD FOR COMPREHENSIVE INFORMATION AND PRICE COMPARISONS

ordable nting...

Texas Instrument's act PostScript® printers.

$1249

TI MicroLaser™ Plus.
300 dpi with HP LaserJet Series II emulation standard. 1.5 Mb RAM. Nine pages per minute; 17 resident fonts; 3,000 pages per month duty cycle. Optional accessories: 2nd paper tray, separate envelope tray.

ORAGE DEVICES

MacWorld have et "one of the rage devices..."

authorized mail order ard-winning drives.

ly what size you should We'll be happy to help ght storage solution.

drives come with a one-year year is available. MicroNet in its most competitive market.

External Storage Devices

MB	MB Per Sec.	Price
SBT1288NP	3.1	$5769
SBT2022NP	2.6	6849
SBT2600NP	3.8	9879
SB606NPR	3.6	4649
SB808NPR	3.6	4879
SBT1288NPR	4.1	5829
SBT2022NPR	3.8	7499
SBT2600NPR	4.4	10519

.....2279
.....619
.....769
.....2999





"WE'RE NOT HAPPY (unless you are!)

We want you to become a repeat customer. So we give you discount mail-order prices...superior service & selection...our unbeatable hassle-free warranty...toll-free tech support...and an unsurpassed return policy. What's more, we do it all with a smile...because that's what you deserve."

WE GUARANTEE

...you'll be pleased with the power, performance, and competitive price of any of our products, which are:

- **Priced LESS than the comparable Apple product.**
- **Backed by a minimum 1-year warranty and our**

MONEY-BACK GUARANTEE.

If you're not satisfied with what you buy from us, just call. We'll refund your purchase price (minus consumables, for printers).*

VISA MasterCard BB

* Before returning merchandise, we must ask that you call our Customer Service Dept. at 1-800-972-3018 to receive a returned merchandise authorization number (RMA). This number must be included with any products you return. No C.O.D. returns, please. Thank you for your cooperation.

This ad was created entirely on Macintosh systems, from concept to film. Call us!

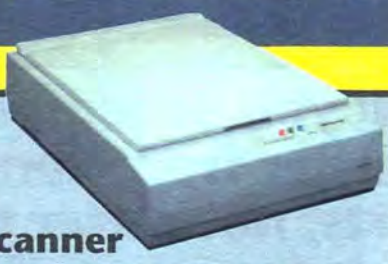
1-800-972-3018



Af pri
from comp

$1939

TI TurboLaser™. 300 dpi with Adobe PostScript Level and RISC-based processor. 2.5 Mb RAM. Nine pages pe minute; 35 resident fonts; 10,000 pages per month duty cycle. Optional accessories: 2nd paper tray, SCSI interface.



$1429

Microtek 600 DPI Scanner

Scanmaker 600ZS Color Scanner includes Adobe Photoshop — full version, with 24-bit color editing and color separation capabilities.

- 16.8 million colors
- 3 scanning passes (red, green and blue filters)
- 14 brightness settings for each color plane
- Scanning speed 150 seconds

High-resolution color scanner capable of scanning 16 million colors at up to 600 dots per inch. Outstanding image quality in a compact, flatbed design.

Microtek Scanmaker Slide Scanner.

The affordable 35mm color slide scanner. Scans landscape or portrait slides at 1850 dpi. Captures 24-bit color and 8-bit grayscale. Bundled with PhotoShop, you'll be able to produce 4-color separations from your color slides.



$2095

MICRONET ST

MacUser and rated MicroN best mass sto

...and we're the ONL dealer for these av

If you're not sure exac buy, just give us a cal you determine the

All of MicroNet's high-quality warranty; an optional second continues to lead the industry

Internal Storage Devices

MB	MB Per Sec.	Pric
Ili-303	1.4	$1469
Ili-404	1.4	1589
Ili-644	1.4	2259
Ili-1000	1.4	2929
Ili-1350	1.4	3519
Ili-644NP	3.0	2609
Ili-1000NP	2.5	3279
Ili-1350NP	3.2	3869

Other SCSI Devices

MD5000DAT .....
44Mb Removable .....
88Mb Removable .....
Rewritable Optical .....

RealTech Dual-Page Displays

$995!

No more squinting and scrolling! Seeing two pages at once will save you hours of time. The latest in flicker-free monochrome technology provides true WYSIWYG! 21" landscape display with 1152 x 870 resolution, 74 dpi. Vertical refresh rate of 75 Hz, full gray-scale capability, and flat CRT (P4 phosphorus, polished screen). 1-year warranty.



CPU	Monitor	Price
Mac SE, SE30	Mono	$995
Mac II, IIcx, IIci IIx, IIfx	Mono GS 256	$995 $1435
Mac IIsi	Mono	$1059
Mac Portable	Mono	$1249



RealTech Full-Page Displays

Quality, flicker-free images at a price that lets you experience the convenience of large screenviewing.

- 15" portrait display
- 870 x 640 resolution, 80 dpi
- Vertical refresh rate of 74 Hz
- Flat CRT, P4 phosphorus, polished screen
- Full grayscale capability
- One-year warranty

$579!

CPU	Monitor	Price
Mac II, IIcx, IIci, IIx, IIfx, SE, SE/30	Mono	$579
Mac II, IIcx, IIxi, IIx, IIfx	GS 256	$1079
Mac IIsi, IIci	GS 16	$495
Mac Portable	Mono	$849

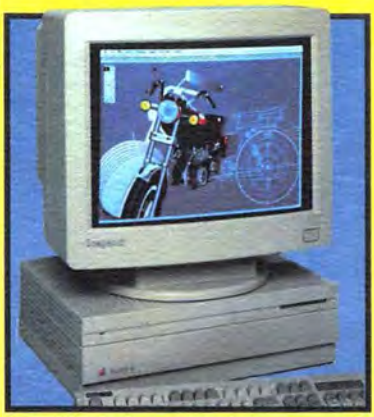


YOUR buying power!

FAX:
1-409-539-414

All prices are subject change without notic

Guaranteed: If you don't



$8449 Mac IIfx 19" Ikegami System, 1 Floppy Drive, 8Mb RAM, 303 Mb MicroNet Drive, 8-bit 19" Color Monitor and Video Card, MacPro Plus Keyboard

When you order from us, you order from computer experts, not order takers!



All of our salespeople have a minimum of 3 years of computer experience. They're trained in Apple's intensive program, as well as our own. We're proud of our team of sales and service experts. They're ready to help you (with a smile!) both before and after the sale.



$2819 Mac IIsi B&W Full Page System, 3 Mb RAM, 40 Mb Hard Drive, MacPro Plus Keyboard



$3845 Mac IIci 14" Trinitron System, 5 Mb RAM, 105 Mb Quantum, MacPro Plus Keyboard, Cache Card



$3629 Mac IIsi 14" Trinitron System, 5 Mb RAM, 105 Mb Quantum, MacPro Plus Keyboard



$4595 Mac IIci B&W 21" Dual Page System, 5 Mb RAM, 105 Mb Quantum, MacPro Plus Keyboard, Cache Card

Real Tech™

CACHE CARDS+



Introducing 4 new performance enhancements for Macintosh.

RealTech IIci Cache Card $159
Full 64K of static RAM cache, and SANE control via the control panel.

RealTech IIsi Cache Card $169
Can be connected directly to the internal slot in the Mac IIsi or to the RealTech Si adapter, which has a math coprocessor socket, a cache card slot and a processor direct slot. 64K of static RAM and SANE control via the control panel.

RealTech IIsi Adapter $59
Has a math coprocessor socket, a cache card slot and a processor direct slot. Works with the RealTech IIsi Cache Card while retaining the processor direct slot.

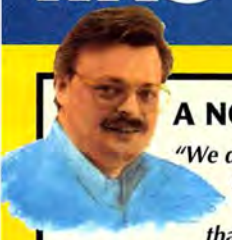
RealTech Classic Upgrade
Based on the latest SIMM technology, this card includes six SIMM slots and can be populated to 1 Mb, 1.5 Mb or 3 Mb. Add your own Mb, or buy it from us with 3 Mb.

0 Mb $39

HARDWARE THAT FITS

610 S. Frazier
Conroe, Texas 77301
Call: 1-409-760-2400
Prices are subject to change.

like it...we'll buy it back!



A NOTE FROM THE PRESIDENT:

"We demand that the products we sell are backed by absolute top quality, service and delivery. When our suppliers don't provide that, we search for sources that will meet your (and our) highest expectations. We've combined forces with Applied Engineering and Fusion Data Systems to offer the best products on the market."

Réal Provencher

APPLIED ENGINEERING

Applied Engineering is Apple's oldest 3rd-party developer. For 12 years they've sold and installed more products for Apple computers than any other company except Apple. Their technical services department has over 70 years of combined experience working on Apple products.

After selling 1,000,000+ units...they're simply the best in the business!

TransWarp NuBus
68040-25MHz 1929
TransWarp SE 68030-25MHz (with 25MHz68882) 739
TransWarp SE 68030-40MHz (with 40MHz68882) 1369
TransWarp LC-33MHz 749
HD Superdrive 1.44.....215
QuadraLink 189
LC Heavy-Duty Power Supply ...99
Quick Silver.....219



FUSION DATA SYSTEMS

TokaMac 68040 Accelerator Boards

Highest performance upgrade available for the IIci, IIsi, SE/30 or LC. TokaMac runs applications up to 300% faster than a IIfx!



Provides significant productivity improvement to users whose primary applications include CAD, graphics, multimedia, modeling, simulation and analysis, animations, spreadsheets, and heavy "number-crunching" routines. Processes at 20 MIPS and 3.5 MFLOPS. System 7.0 compatible; no re-booting required.

TokaMac CI 2149
TokaMac SX (SE/30 and Si) 2019
TokaMac LC 1879

WACOM TABLETS

Standard 12 x 12.....779
Standard 12 x 18.....1169
Standard 18 x 25.....3119
Standard 6 x 9.....549

Choice of stylus or 4-button cursor. Please specify when ordering.

PERIPHERAL LAND

Infinity Turbo 44 629
Infinity Turbo 88 829
Quick SCSI w/cable.....349

QUANTUM HARD DRIVES

Reliable drives backed by a two-year warranty.

Internal Hard Drives

Q 52LP.....249
Q 105LP.....369
Q 210S.....709
Q 425S.....1389

External Hard Drives

Q 52LP.....335
Q 105LP.....455
Q 210S.....795
Q 425S.....1475

We've run our business on Macs from the very beginning.

We know networking...so if you have a question, try us!

We run our entire business on Macs; we've had to deal with networking issues for more than six years. We use Shiva, Farallon, Dayna, and Asanté networking products in our day-to-day operations, and we know from experience how they work. We can tell you firsthand how a twisted pair Ethernet network is configured and interfaced with a LocalTalk network. If you already have a sticky network issue, our sales consultants will team up with one of our technical specialists to find a custom solution for you. *Give us a call!*

ASANTÉ

Asanté continues to lead the pack with quality Ethernet products at affordable prices...if you don't know whether you need 16 or 64K call us; we'll tell you!

16K Cards (all machines) ..199
64K Cards (all machines) ..255
10T Hub.....669

CABLING

Hypernet Din 8 Connectors..27
Hypernet DB-9 Connectors ..27

CAYMAN SYSTEMS

GatorBox.....2015
GatorPrint.....399

SHIVA

Ethergate.....1389
Fastpath 4.....2079
Netbridge 445
NetModem 9600 v.32.....1249
NetModem v.2400.....369
Netserial 295

FARALLON

Star Connector.....17
Star Connector EN 131
Star Controller 865
Star Controller EN.....1709

DAYNA

DaynaPORT-T.....199
DaynaPORT-T w/FP 299
EtherPrint 335
EtherPrint Plus.....605



SOFTWARE

AppleShare/Print Server 225
AppleShare/File Server 2.0...480
AppleTalk Internet Router ...330
Carbon Copy Mac, 2 User.. 189
Data Club, 3 User 215
GraceLAN (50 User) 285
Liaison v3.0 263
QuickMail, 10 User 335
Timbuktu Remote v3.1 125
Timbuktu v3.1.....95
Tops.....199

EVEREX

EMAC Silhouette Trackball 79
EMAC 150 Mb Tape Backup.....665
EMAC Pocket Fax Modem 309





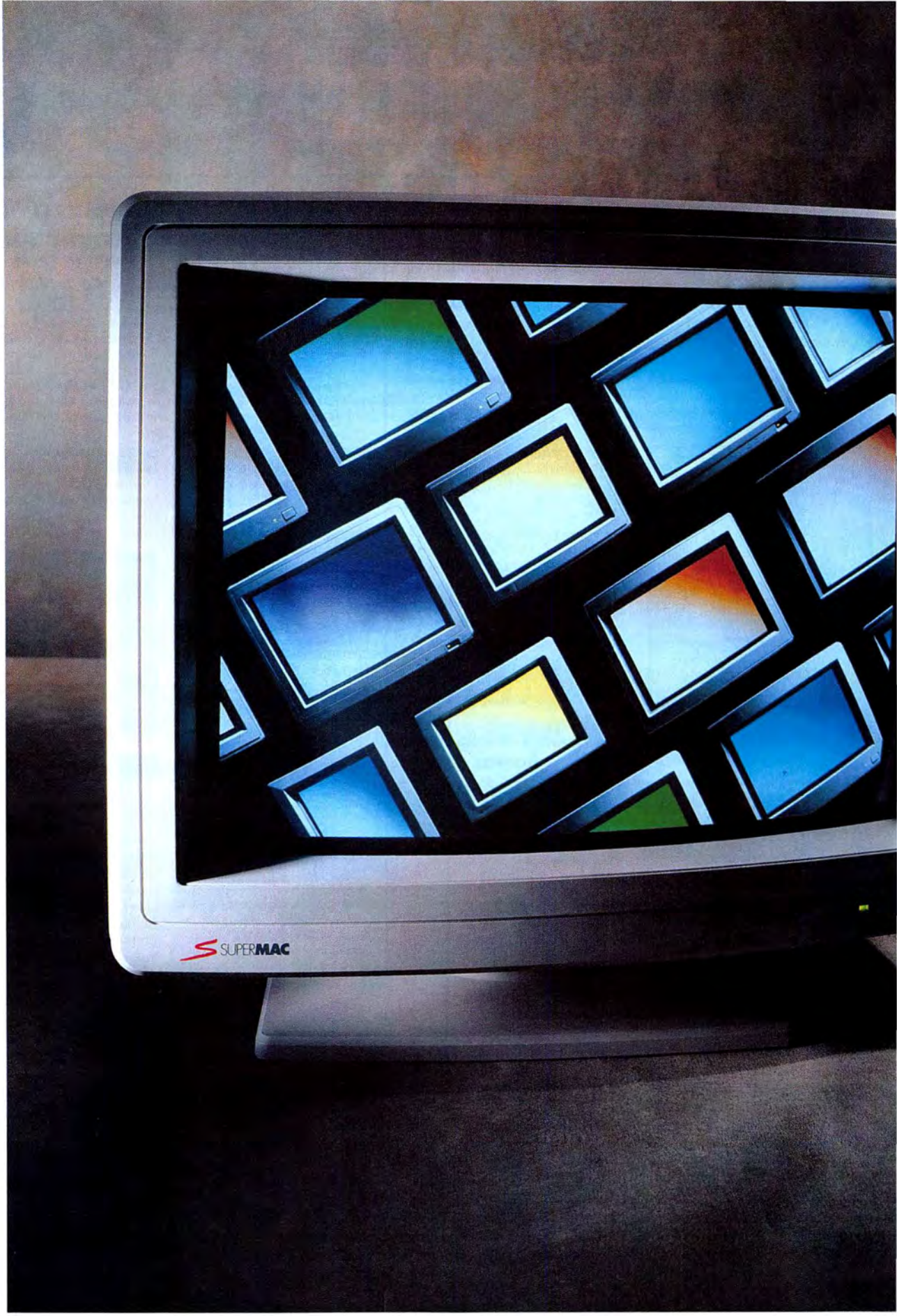
$75 ### ZOOM MODEMS

Zoom 2400.....75
Zoom 2400 w/send/receive.....119
Zoom v.42 bis.....139
Zoom 9600 v.32/v.42 bis 419

1-800-972-3018

FAX: 1-409-539-4141

CIRCLE 197 ON READER SERVICE CARD.


SUPERMAC



PHOTOGRAPHY: STEVEN UNDERWOOD

BIG SCREENS FOR SMALL MACS:

Mac LC and IIsi Color Display Systems

No more big-screen envy! Now you can treat your LC or IIsi to a million color pixels for less than you might have thought possible.

Admit it: Once you've gazed into an enormous color monitor, it's hard to settle for limited screen real estate. But then gaze at the price of a high-performance large-screen 24-bit-color system—as much as $10,000—and you'll understand why only graphic artists and prepress professionals, whose work demands 16 million colors and 1 million pixels, can justify the cost of top-of-the-line color acreage.

But relief from big-screen envy is in sight. Thanks in part to deep-pocket desktop publishers, there are now big-screen solutions for those of us who can't afford or simply don't need the biggest, best, and brightest color displays money can buy. As competition at the color summit drives down the prices of professional *24-bit* display systems, the entry fee for large-screen *8-bit* systems is also shrinking.

BY MARK FROST
AND THE MACUSER LABS STAFF

Mac LC and IIsi Color Display Systems

The rich photographic hues of a 24-bit-true-color display system may be necessary for image retouching, illustration, digital video, and the best-quality desktop publishing, but an 8-bit-color display — which provides 256 simultaneous colors out of a palette of more than 16 million — is more than enough for most users.

What's more, a large 8-bit monitor is more than just a pleasure to behold — it's also a great productivity booster. If you've ever been forced to scroll back and forth to perform simple spreadsheet operations or up and down to compare ideas in a word-processing document, you know the frustration a small screen can cause. And if you keep several applications open on your desktop simultaneously, the need for a larger screen becomes more acute. Luckily, Apple offers two Macs that make the transition to big-screen color affordable: the Mac LC — the lowest-priced color Mac — and the compact Mac IIsi.

Built-In Color

But there's more to adding big-screen color to your LC or IIsi than just plugging in a big monitor. As screen size increases, so too do the number of pixels needed to cover the screens and the speed at which the screens want video data to refresh this greater number of pixels. For your Mac to support these higher video-data-transfer rates, a separate video card is also necessary. And to support 8 bits of video information for each pixel, more VRAM

How It Works: 8-Bit-Color Video

Video Card

Color QuickDraw, part of the Mac's system software, generates the image you see on your screen. Image data is sent to the video card via the *PDS* (processor-direct slot) connector 1.

"Glue" chips 2 and the firmware in ROM on the video card coordinate communication among the Mac and components on the video card.

The *frame-buffer-controller chip* 3 accepts image data and writes it to VRAM (video RAM) 4. Also, in conjunction with a timing crystal, it generates the *sync timing*, which controls the rate at which video data is sent to the monitor.

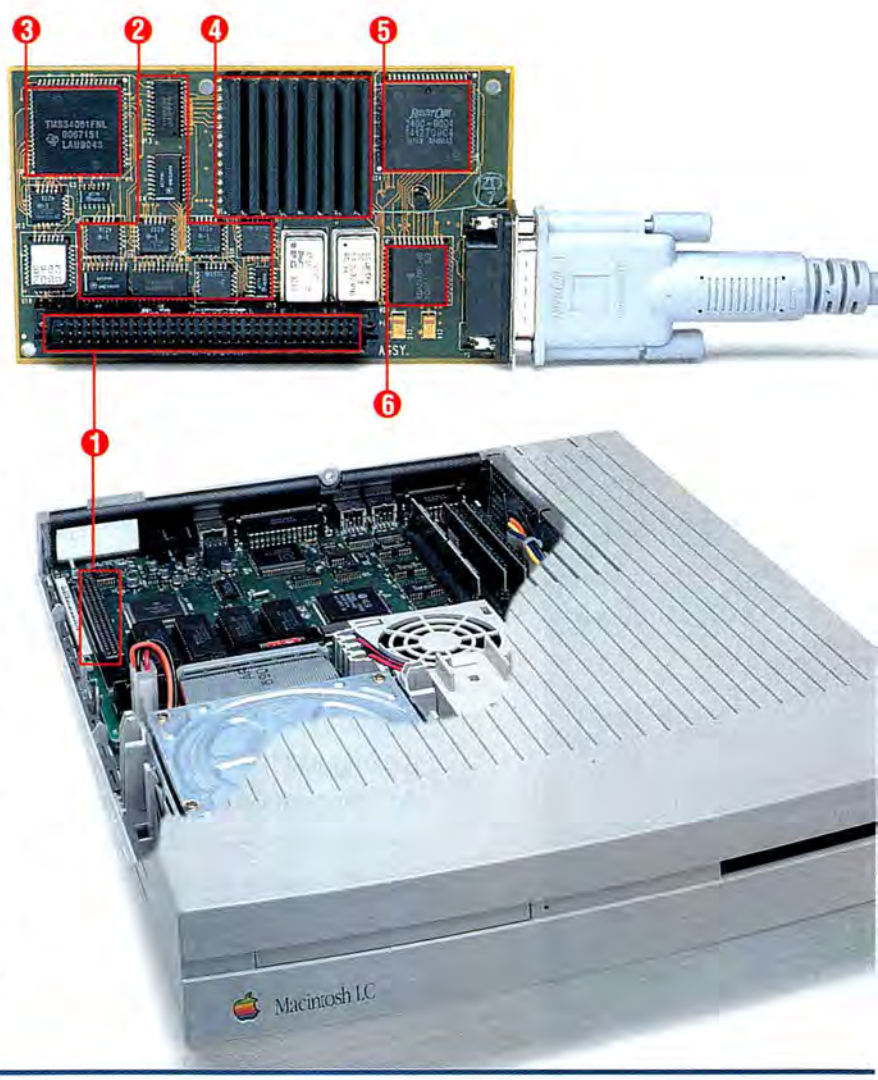
Image data is stored as a bit map of 8-bit *index values* in VRAM. A *CLUT* (color-lookup table) containing three 8-bit channels converts these index values into the proper amounts of red, green, and blue on your screen.

Because three 8-bit channels provide a total of 24 bits, an 8-bit video card can still produce the same 16.7 million colors a 24-bit card can produce, but it's limited to a palette of 256 of any of these colors at a time.

The VRAM is *dual-ported*, so the Mac can be writing video data at the same time as it's being read for display on the screen.

A custom-designed *ASIC* (application-specific integrated circuit) 5 reads image data and sends it to the *RAMDAC* (random-access-memory digital-to-analog converter) chip at frame rates determined by the frame-buffer controller and the timing crystal.

The RAMDAC chip 6 contains the color lookup table in its own RAM and also contains three digital-to-analog converters that convert video-index values to the proper red, green, and blue analog video signals.

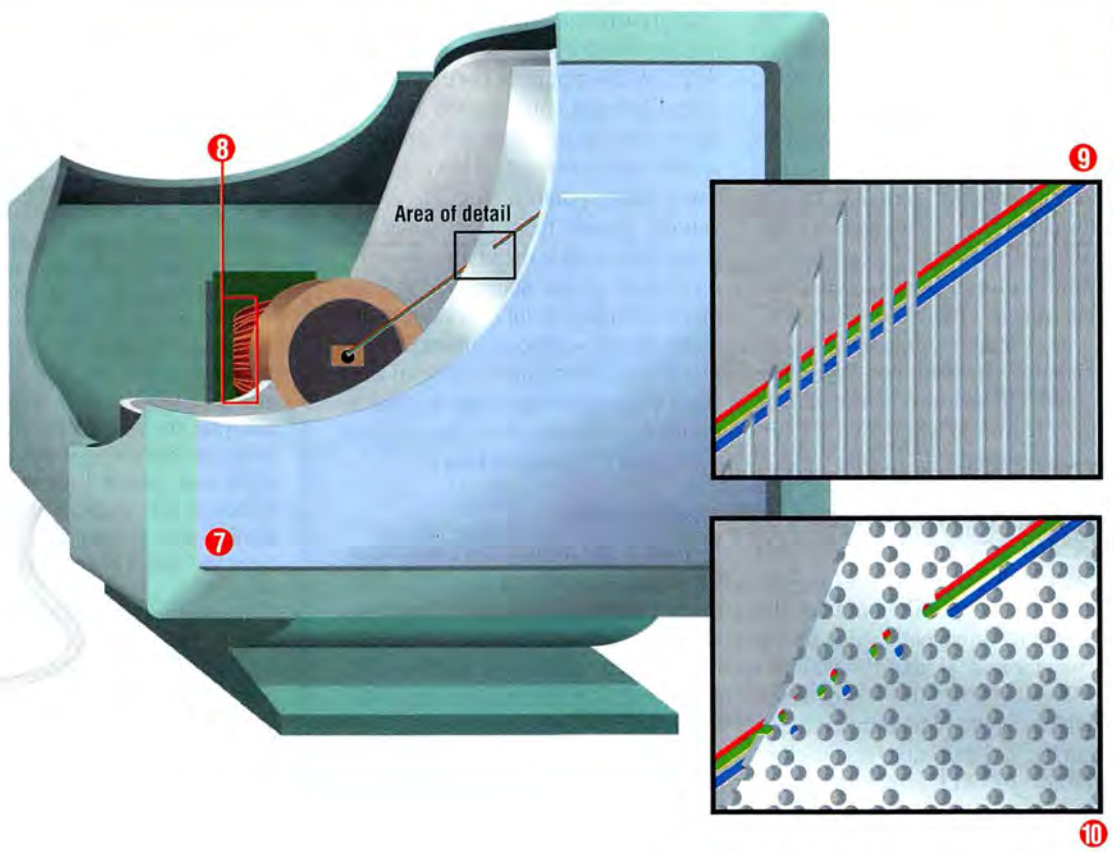


(video random-access memory) is required. If you attach a larger monitor without increasing your Mac's VRAM, the *bit depth* —the number of bits of information that determines the total possible number of colors or shades of gray — will fall quickly.

The LC's motherboard contains a slot for VRAM SIMMs, and Apple ships the LC with either 256K or 512K VRAM SIMMs. With 256K VRAM SIMMs installed, the LC can support 8-bit color on the Apple 12-inch RGB monitor, at 512 x 384 pixels, or 4-bit color (16 total colors or shades of gray) on the 12-inch gray-scale monitor or 13-inch color monitor, at 640 x 480 pixels. With 512K VRAM SIMMs installed, the LC can support the Apple 12-inch gray-scale and 13-inch color monitors at 8 bits and the 12-inch RGB monitor at 16 bits (32,768 colors — more than enough for all but the most demanding work).

Also, because large-screen monitors have a greater number of pixels than smaller ones do, video data must be passed more quickly in order to refresh the screen in the same amount of time. Because the LC and IIsi's built-in video cannot write to the screen fast enough to support these higher-resolution displays, these computers need the help of video cards that contain not only a greater amount of VRAM but also components that can send data to the screen at a much faster rate.

To help you choose the best route



Analog Color Monitors

In the monitor, video amplifiers boost the red, green, and blue signals to the levels necessary to drive the electron guns in the *CRT* (cathode-ray tube) 7.

The *sync signal* is decoded and amplified to drive the horizontal and vertical deflection coils 8, which deflect the electron beams in a *raster*, or repeating scan. On the Mac, a complete image is painted on-screen at a rate of 60 to 75 times a second. This rate is often called the *vertical-scan rate*. The *horizontal-scan rate* is the number of times the beam sweeps from left to right in painting each line of each video frame.

The electron beams pass through either an aperture grille 9 (on Trinitron CRTs) or a shadow mask 10, which aligns the electron beams so that they strike the appropriate red, green, and blue phosphors, causing them to glow and produce an image.

— Jeff Pittelkau

into the wonderful world of big-screen color, MacUser Labs checked out eleven 8-bit-color systems — five for the LC and six for the IIsi — that hook up to either computer's *PDS* (processor-direct slot). Each system consisted of a video card, a cable, and a color monitor. We chose to examine PDS-based systems not only because the LC has no NuBus slots but also because PDS cards access the Mac's processor directly and thus can theoretically transfer information more quickly than NuBus cards can for some high-end applications. Also, they're better suited to the tight space and power constraints of the LC and the IIsi. Some cards even contain a PDS on the video card, providing a place to put other cards, such as Ethernet cards.

After deciding to narrow our search for the ideal 8-bit-color display system for the LC and the IIsi to PDS-card-based systems, we rounded up the usual suspects — and some newcomers as well. Last May when we looked at 24-bit-color systems (see "The Perfect Image: True-Color Displays," May '91, Buyer's Guide page 4), we found that the E-Machines ColorPage T16 — which had also taken top honors the year before in a review of 8-bit-color systems (see "In Living Color," May '90, Buyer's Guide page 32) — was again the best when coupled with E-Machines' 24-bit-color card. This year we tested the ColorPage T16 with E-Machines' 8-bit PDS card for the LC. Could it "threepeat?" Also for the LC, we looked at the E-Machines ColorPage E16; Radius Color Pivot LC, which can be rotated into either a portrait or a landscape orientation; RasterOps 19" 8LC; and SuperMac 19" SuperMatch Spectrum/8 LC.

For the IIsi, we looked at the Mirror ProView 20"; Radius Color Pivot si; SuperMac 21" SuperMatch Spectrum/8 si; and SuperMac 19" Dual-Mode Spectrum/8•24 PDQ si, which also offers a 24-bit mode. In addition, we tested the identical Ehman 20" Color Trinitron and Nutmeg N19Csi, which use not only the same display but also the same video card.

Pixel Pointers

The Mac's display scheme — for both screen display and printing — is designed around the traditional printing measurement of 72 *points* per inch. Thus, monitors that pack 72 *pixels* (*picture elements* — the tiny dots that make up an image on-screen) per inch most accurately match objects on the screen with those on the printed page. A screen that has 72 dpi (dots, or pixels, per inch) is referred to as *WYSIWYG* — what you see is what you get.

Resolutions higher than 72 dpi make on-screen objects appear smaller than they are on the printed page. High-resolution monitors can fit more information into the same space than can WYSIWYG monitors, but they're less useful for applications such as drafting or desktop publishing that require precise measurements. However, because many photo-retouching applications benefit from tightly packed pixels that reduce the visibility of the *pixel grid* — the spaces among the pixels — high-resolution monitors can make images appear smoother and more like photographs. Also, if you don't mind squinting, a high-resolution monitor can display more spreadsheet cells and DTP-page territory.

Gem Screens

Most of the monitors we examined use the Trinitron technology, with tubes made by Sony. The Trinitron technology has gained a well-deserved reputation for sharpness and evenness of color and brightness, but the older technology — *shadow mask* — is gaining ground, thanks to new shadow-mask materials such as Invar that help produce brighter pictures, without distortion.

In both types of monitor tubes, three electron beams are focused on the inside of the front of the tube — what we see as the *screen* — which is covered with *phosphors* — chemicals that glow when hit by electrons. Three types of phosphors are used, one for each of a monitor's primary colors: red, green, and blue.

In a Trinitron tube, the beams pass through an array of vertically aligned wires, called an *aperture grille*, which separates the three electron beams before they hit the red, green, and blue phosphors on the screen. The three *guns*, which fire the electron beams from the back of the tube, are mounted in one unit and are focused with a single lens, therefore reducing the possibility that any single beam will

For Your Viewing Pleasure

Before you invest in a large-screen monitor, you should take into account safety and ergonomics. It isn't a pleasant experience, once you've gotten your 19-inch monitor out of its colossal box, to find that the monitor covers 40 percent of your desktop and that you must sit at least 2 feet away from your desk just to see the whole screen. A large-screen monitor requires a certain amount of consideration beyond evaluating its picture quality.

Before buying a large-screen monitor, check its dimensions to make sure that your desk can accommodate it. The standard metal office desk was not designed to hold a 70-pound monitor — nor was your Macintosh. Most high-quality large-screen monitors come with stands you can place over your Mac so it doesn't get crushed. Some also offer swivel mounts that let you adjust your viewing angle so that office lighting is not reflected and so that the screen is at the proper height — the top of the screen should be approximately at eye level.

There has been much worrisome discussion about the dangers of *ELF*, or extremely low frequency, magnetic fields, which all monitors give off to some degree. Studies have been conducted to see what harm these fields pose, but few conclusions have been reached. In fact, no standards currently exist in the U.S. for judging what is a safe and acceptable level for ELF fields. Some European countries and the International Radiation Protection Association (IRPA), however, have adopted standards regarding ELF emissions.

ELF-field strength diminishes over distance, so placement of your monitor is crucial. With a 19-inch monitor, the distances between the user and the monitor recommended by the IRPA are 30 inches (approximately arm's length) from the front and 45

lose focus or become misaligned.

The time-tested shadow-mask tube uses a sheet of perforated metal instead of a wire array (see the "How It Works: 8-Bit-Color Video" sidebar). The three guns are not mounted together, and some designs also use separate lenses, thus increasing the possibility of misalignment and focusing problems. A shadow mask sometimes also suffers from *doming*, a heat-distortion phenomenon that results in discoloration and blotchiness on the screen — the Trinitron wire array is immune to this distortion. However, the new shadow-mask alloy Invar resists deformation and doming.

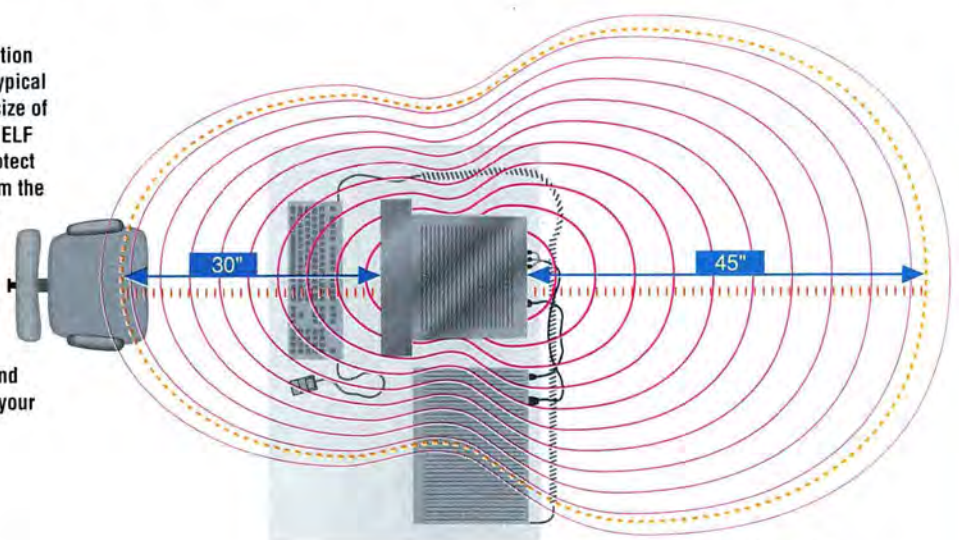
The E-Machines ColorPage E16 and the Radius Color Pivots are based on older-design Toshiba shadow-mask tubes; on the other hand, the RasterOps 19" 8LC and the two single-resolution SuperMac models use new Hitachi Invar alloys that offer a picture quality much improved over their predecessors'. These displays are very similar to, and in some cases better than, Trinitron displays.

Installation: Be Careful

Installing a PDS card is a fairly straightforward process, and most of the systems have ample documentation

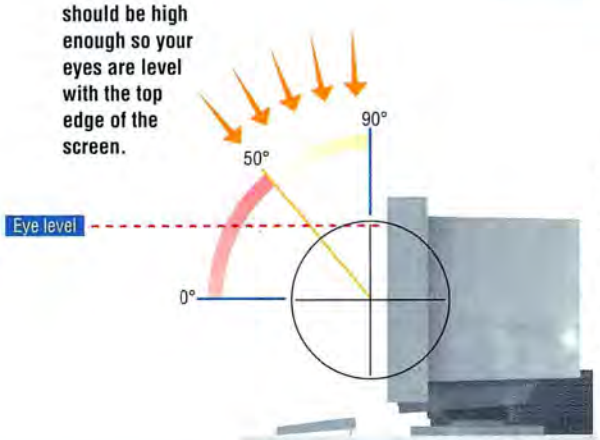
inches from the sides and the back. Because ELF fields can penetrate walls, keep in mind what — or, more importantly, who — is on the other side of the wall behind your monitor. Try to have the rear of your monitor facing either an exterior wall or a wall with another monitor directly opposite. When working in cubicles, try to arrange large-screen monitors so that they all face a common corner. In all such situations, be sure that no people are within the 45-inch range of the rear or sides of any monitors and check to see that monitors are far enough apart that their ELF field doesn't disturb other monitor's screens.

This illustration shows the typical shape and size of a monitor's ELF field. To protect yourself from the potentially hazardous ELF field, keep about 30 inches between your eyes and the front of your monitor.



Protect others from the ELF field by keeping them about 45 inches away from the back and sides of your monitor.

The monitor should be high enough so your eyes are level with the top edge of the screen.



To reduce screen glare, have lighting baffled or keep light angles at between 50 and 90 degrees.

covering both the card's installation and the monitor's cabling. However, the design of the LC is such that while the monitor cable is being plugged in to the PDS video card, the card is torqued at an angle to the PDS connector. This torquing can damage the connector; we recommend leaving the LC open when you connect the cable so that you can support the back of the card to reduce stress on the connector. None of the manuals provide this warning.

A warning should also accompany the IIsi systems, because all of their PDS cards — with the exception of the Radius one, which is so compact that it fits vertically in the IIsi — require an adapter that places the display card at a right angle to the adapter. Some cards get around the torquing problem by bolting directly to the IIsi's back panel. The SuperMac cards, for example, have metal supporting plates attached to the adapter cards to reduce any torque on either the display card or the PDS connector. They also have screws that attach the cable connector directly to the case, which reduces the threat of torquing. It should be noted that when the Mirror system arrived, it came without an adapter (Mirror offers it as an extra for $50), even though it was shown in the installation manual as being required for proper installation of the display card.

Seeing Is Believing

Hundreds of display systems have passed through MacUser Labs' doors, and a procedure for running them through their paces has long been established. Before we test a display, we *degauss* it — zap the screen with a uniform magnetic field to remove traces of latent magnetic fields that might otherwise distort images. We then orient each display along the earth's east/west axis to protect against possible distortion caused by the earth's magnetic field.

After each monitor has warmed up for at least an hour, we measure its *active area,* the portion of the screen that lights up. Some manufacturers claim that their screen dimensions include the entire diagonal distance across the screen from one corner of the *bezel* (the portion of the case that surrounds the screen) to the opposite corner. However, the actual *image area* is often considerably smaller, because manufacturers use only that part of the screen that performs best — the middle. Accurate focus and color at the corners are difficult to accomplish on big displays. The bigger the display, the more the electron beams sent to the corners must be bent and aimed by the electromagnets at the base of the tube. This not only slows the beams down but also reduces the accuracy of the beams' aim, causing part of the beams to hit the wrong pixels. If the manufacturer reduces the image area or uses a smaller tube, the degree to which electron beams must be bent will be reduced and the image quality will be more uniform — but at the price of a smaller working area.

One obstacle to getting a sharp image is the conflict between brightness and focus: The greater the brightness, the less precise the focus. The search for a happy medium between brightness and focus causes monitor users to spend hours fiddling with tiny knobs and adds new levels of frustration to using a Mac.

We used a Minolta TV Analyzer to determine the maximum usable screen brightness in *footlamberts,* a measure of how bright a display can be before it starts to lose focus. The two E-Machines systems for the LC set the standard for brightness, with most others close behind; the Mirror ProView 20" for the IIsi and the RasterOps 19" 8LC, however, were dim.

Figure 1: The Best for the Least

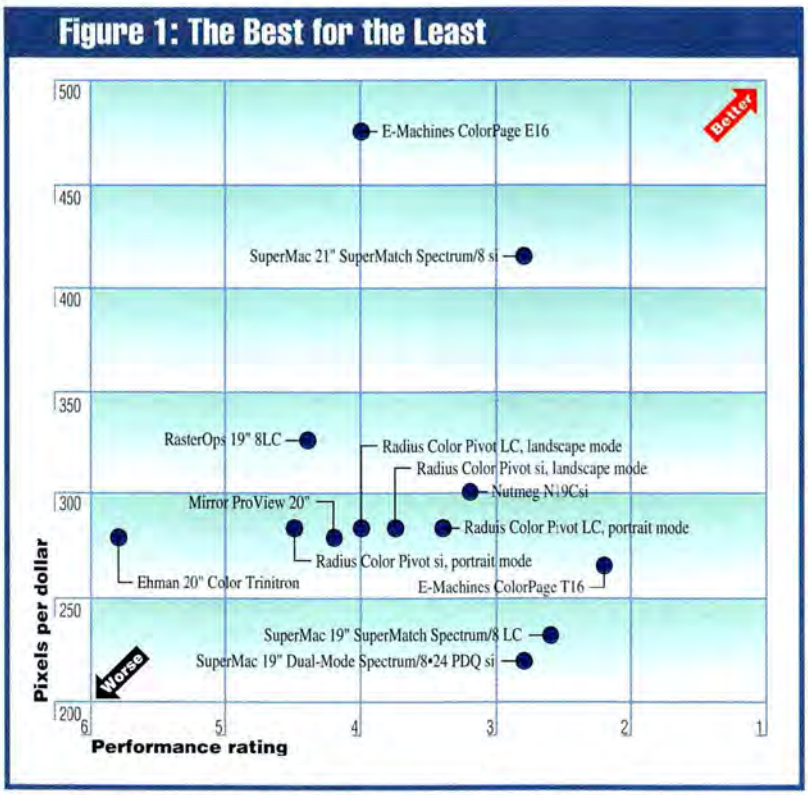


Figure 1: To find the best monitor for the money, we compared the number of pixels you get for a dollar with each monitor's rating on a scale of 1 (best) to 6 (worst). We rated the monitors by averaging the results of all tests — objective as well as subjective (jury) ones. The systems closest to the top right are inexpensive yet did well on all tests, and those closest to the bottom left are more expensive and performed relatively poorly.

Some monitors let you increase the brightness beyond usable levels so that as the phosphors on the screen fade with age, you continue to get a bright image many years down the road. It's important to note, however, that the higher the level at which you set brightness, the faster the phosphors deteriorate. A screen saver can lengthen phosphor life by turning down the brightness of the screen while the computer is idle or by playing moving images across the screen so that no one color or shade of the screen's phosphors is depleted. If you really want to save your screen while your Mac runs all night, simply turn off the monitor.

Most monitors provide accessible controls for contrast, image position, degaussing, and *convergence* — the ability of the three electron beams to come together on the correct dots of phosphor. These controls not only allow different users to adjust a display to their own preferences but also let them maintain a crisp image over the long haul. There are also other fine-tuning controls, some of which may require you to use a screwdriver to operate them or to open a panel on the monitor's case to access them. We strongly caution against attempting to open your display's case — many of the internal components retain high-voltage electrical charges that can kill even after the display has been turned off. You paid good money for this display, and you've only one life to live — leave internal adjustments to the experts.

Another aspect of screen quality is sharpness. MacUser Labs uses a custom-built CCD (charge-coupled device) array to compare the brightness levels of a series of wide white lines separated by thin (one-pixel wide) black lines and thin white lines separated by wide black lines. Measuring a monitor's ability to display this array crisply provides an objective measure of screen sharpness called *MTF*, or modulation-transfer function. A sharp monitor delivers the same brightness across the wide white lines as it does in the narrow white ones. In displays that aren't as sharp, the areas where the white and black lines meet seem to bleed together, making the interface between the two soft and gray. The overall result is an image that appears dim and fuzzy. Monitors with fewer pixels per inch perform better in this test, because the pixels, which are farther apart, bleed less into each other. All the displays we tested performed well, particularly the E-Machines ColorPage T16. The weakest, even though it was still quite good, was the Radius Color Pivot LC in landscape orientation.

Another trade-off between brightness and focus is glare protection versus sharpness. Any modification to a

On the Horizon

Much attention has been paid to Apple's new lines of notebook and high-powered workstation computers. Less attention has been accorded to another long-awaited product: the Macintosh 21" Color Display. This new monitor is designed to work with Apple's Macintosh Display Card 8•24 and 8•24 GC and other compatible video cards. Our preliminary look at this monitor reinforced what we already knew — Apple knows monitors. But, as many Apple products go, the price — $4,599 suggested retail — is by no means average. Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010.

In other big-screen news, Radius has announced its new PrecisionColor Display/20, a high-resolution multiscanning monitor for Macs as well as PCs. Like most Macintosh displays, this monitor can change pixel depth on the fly, but it can also change resolutions just as easily. So if your photo-retouching work needs a higher pixel density but your desktop-publishing work requires the standard 72 dpi, you now need only one monitor. The PrecisionColor Display/20, because of its multiscanning ability, can support a variety of scanning rates up to 75 hertz for flicker-free viewing. Listing at an attractive $3,299, this display may knock a lot of old favorites off their perches. Radius, 1710 Fortune Drive, San Jose, CA 95131; (408) 434-1010.

All the activity isn't confined to the color big-screen market. Envisio recently announced three new display products for the new Macs. The Notebook Display Adaptor can drive monochrome displays as large as 21 inches when plugged in to a PowerBook 100. The Notebook Display Adaptor 030 supports the same monochrome displays for PowerBook 140 and 170 users as well and can drive Apple's 13-inch color display in 8-bit mode. Finally, VideoSimms ($595 per pair) plug in to the Classic and Classic II computers and can drive large-screen monochrome and 8-bit-color monitors (Classic II only). Envisio, 5365 W. Bald Eagle Blvd., White Bear Lake, MN 55110; (612) 653-7694.



The Apple Macintosh 21" Color Display (left) and the Radius PrecisionColor Display/20 are two new contenders in the 24-bit-color-monitor market.

monitor's face to reduce glare generally results in lowered sharpness. Turning the brightness up to compensate causes you to lose some focus. The best antiglare treatment comes from OCLI (Optical Coating Laboratories, Inc.), but it isn't cheap. Mirror uses this superior method, as does SuperMac on its 21" SuperMatch Spectrum/8 si and 19" Dual-Mode Spectrum/8•24 PDQ si. Asahi Glass' antireflection treatment, used on the RasterOps 19" 8LC, is virtually the same. Both E-Machines displays use an inexpensive but effective silica coating to reduce glare. Like the others, this coating simply diffuses reflected light. No matter what type of coating is used, the best defense against glare is to make sure that lights are baffled so that direct light never strikes the screen.

If the three electron beams stray from each other, the result is *misconvergence* — a rainbow outline around on-screen objects. If a monitor has external convergence controls or if you bought your system from a reputable dealer who knows how to adjust your display, convergence will not be much of a problem. On the E-Machines ColorPage T16 and the SuperMac 21-inch IIsi systems, the red, green, and blue beams converged to within 10 percent of the width of a pixel. The E-Machines ColorPage E16 had the worst convergence (70 percent), followed by the Ehman 20" Color Trinitron (50 percent) and the Radius Color Pivot si in portrait orientation (40 percent).

Color tracking is a measure of how well the three electron beams deliver exactly the same color intensity. Color tracking is described as a percentage, with 100 percent being perfectly matched intensity across all three beams. Results of our testing showed that all the displays averaged better than 90 percent, making color tracking a nonissue for choosing among these monitors.

But How Do They Look?

After we completed this exhaustive suite of objective tests, a jury of lab experts subjectively examined each

The Bottom Line

Spending the same amount of money for a color monitor as you did for your Mac LC or IIsi might seem ridiculous, until you have the opportunity to spend time with one of these beauties. When you consider what 24-bit systems are going for today and what 8-bit systems cost a couple of years ago, you'll agree that a big-screen high-resolution color system for less than $3,000 *is* a good deal.

Of the 11 LC and IIsi systems we looked at, the majority were based on Trinitron tubes — historically the better-performing monitors. This time around, however, our tests proved that shadow-mask monitors are improving.

Among the LC systems, the **E-Machines ColorPage T16** ($3,095 list, $1,940 street) had the finest picture of them all. However, with a screen size of 16 inches, this monitor might not offer you enough screen real estate. The **Radius Color Pivot LC** ($2,790 list, $1,947 street) was the jury's favorite. Many users may see the pivot as a gimmick, but when you look at the price and realize that you get most of the benefits of a big screen at about half the cost, you'll see why it's so highly rated. The **SuperMac 19" SuperMatch Spectrum/8 LC** ($3,599 list, $2,408 street) performed well, coming closest to the ColorPage T16 in screen performance. This system uses perhaps the most efficiently designed display card, requiring no adapter. All the SuperMac systems come with well-built cables and even have the size of the monitor stamped onto the cables so you can tell which system they belong to. But the high cost of this SuperMac system made it less desirable compared with the other two systems. The **E-Machines ColorPage E16** ($2,190 list, $1,095 street) came in last in our judging. Although attractively priced, it just didn't meet the usually high E-Machines standards.

On the IIsi side, the **SuperMac 21" SuperMatch Spectrum/8 si** ($5,199 list, $3,358 street) was the clear winner, with not only a fine picture but also a very low cost per pixel. If a big, big screen is what you want, this 21-incher is your best buy. The **Ehman 20" Color Trinitron** ($2,795 direct), although inexpensive, turned out to be a "you get what you pay for" runner-up.



The top-performing LC color systems are, from left to right, the E-Machines ColorPage T16, the Radius Color Pivot LC, and the SuperMac 19" SuperMatch Spectrum/8 LC. For the IIsi, the SuperMac 21" SuperMatch Spectrum/8 si (far right) was head and shoulders above the rest.

display system for focus; *geometry*, or the monitor's ability to accurately represent shapes; color; and *nuisances*, such as flicker, jitter, or any other annoying movement of the screen's image. The jury awarded point values on a scale of 1 to 5 for each category, with 5 being the best. The displays' identities were masked to remove any possible favoritism. The results surprised even the jury.

For focus, the E-Machines ColorPage T16 topped the jury's list, at 4.5 points, with the SuperMac 19" SuperMatch Spectrum/8 LC a close second, at 4.1. Tied for the unenviable distinction of worst focus were the SuperMac 21" SuperMatch Spectrum/8 si and the ColorPage T16's smaller sibling, the ColorPage E16, with 3.3 points. Our experts also gave the ColorPage E16 poor marks for geometry (3.3 points), an area in which all the other displays averaged better than 4.4 points.

The E-Machines ColorPage T16 system, which had been champion in previous evaluations of 8- and 24-bit-color displays, received an impressive 4.8 points for color quality — but it was edged out by all three SuperMac systems, which received perfect 5s. Nuisance proved to be a nonissue, because all the systems scored better than 4.5 points in this category. After tabulating and averaging all scores, we found that the SuperMac 19-inch LC system scored highest in our subjective testing, with 4.6 points, followed closely by its IIsi siblings and the E-Machines ColorPage T16, which all averaged 4.5 points.

Some Handy Software

In addition to providing high-quality displays, some manufacturers add a premium: high-quality utility software. Radius — the first to bundle handy screen utilities with its display systems — provides SoftPivot software, which enables users to enlarge their menu font for easier readability and adds screen-capture and save utilities as well as the ability to pan across a large "virtual display."

SuperMac's SuperVideo software provides similar utilities as well as a zooming feature and a convergence test for keeping the display well tuned. SuperVideo also has a homing feature, which returns the cursor to a preset location if it becomes lost — a common occurrence on a big screen.

Ehman provides a soft-FPU utility that emulates a *floating-point unit* coprocessor, thus allowing the LC, which has no FPU, to run applications that require one. Mirror Technologies also has a fine bundle of utilities, which includes pop-up menus, an enlarged cursor and menu bar, and a screen copier. The E-Machines software offers brightness and contrast controls as well as a screen saver.

Big Screen, Big Decision

A large-screen color monitor can do wonders for your outlook on life, not to mention your view of a spreadsheet, a DTP layout, or an illustration. Top-of-the-line 24-bit true-color monitors can cost far more than the Macs to which they're attached, and the vast majority of business applications do just fine on an 8-bit display.

When a wide-screen 8-bit display is coupled with a low-priced Mac LC or a powerful, compact Mac IIsi, color becomes an affordable option for average Mac users. And we're happy to announce that most of the big-screen 8-bit display systems we looked at were more than adequate.

After tabulating our objective and subjective test results, our research staff sought out reasonable street prices for each product. On an overall price/performance basis, the systems based on shadow-mask technology fared much better than systems based on this technology had in past years, but Trinitron-based systems still make up the bulk of the middle-to-good range (see Figure 1). For a closer look at specific monitor systems and our recommendations, see the "Bottom Line" sidebar.

Mark Frost, a *MacUser* associate editor, is basking in the afterglow of LC and IIsi monitors.

Table 1 Criteria

List price — The vendor's suggested prices for a complete system (monitor, PDS card, cables, and software), for the monitor alone, and for the Mac display card alone.

Street price (system tested) — The average price of the complete system we tested at dealers surveyed across the U.S. in October 1991 or through mail order.

Tube type — The monitor tube's OEM and whether the tube uses a shadow mask or Trinitron aperture grille.

Screen size (diagonal) — The distance from one corner to the opposite corner on the exposed glass face of the monitor, in inches.

Active screen size (diagonal) — The length, diagonally, of the portion of the screen that lights up, in inches.

Screen dimensions (W x H, pixels) — The number of dots (pixels) displayed on the screen, counting horizontally (width) and vertically (height).

Resolution — The number of dots (pixels) per inch, measured horizontally.

Vertical-scan (refresh) rate — How quickly, in cycles per second (hertz), the screen is redrawn from top to bottom; 65 hertz is considered sufficient to eliminate flicker.

Horizontal-scan rate — How many lines of pixels can be written on the screen per second, in kilohertz.

Power consumption (watts) — The electrical-power requirements of the monitor as well as those of the display card, in watts.

Antiglare treatment — The coating or transparent panel on the monitor screen, designed to eliminate or diffuse reflected light.

Controls — The location and/or type of any controls for adjusting power, screen brightness and contrast, vertical and horizontal position and size of the image, degaussing, and vertical and horizontal convergence.

Case dimensions (L x W x H) — The outside length, width, and height of the monitor's plastic shell, in inches.

Footprint — The area the monitor stand occupies on the top of your desk, in square inches.

Software features — Specific features of the software that's bundled with the display system.

Mac LC and IIsi Color Display Systems

Table 1: Features of Color Display Systems for the Mac LC and IIsi

	Mac LC E-Machines ColorPage E16 ★★★½	E-Machines ColorPage T16 ★★★★½	Radius Color Pivot LC ★★★★½	RasterOps 19" 8LC ★★★★
List price				
Full system	$2,190	$3,095	$2,790	$3,698
Monitor only	$1,595	$2,500	$1,995	$2,799
Display card only	$595	$595	$795	$899
Street price (system tested)	$1,095	$1,940	$1,947	$2,399
Pros	Least expensive.	Best picture. Inexpensive.	Good image quality, software, and price.	Inexpensive.
Cons	Poor display characteristics. Poorly shielded cable.	Smallest screen. Poorly shielded cable.	Large footprint for size of screen.	Dim screen. Large footprint.
Specifications				
Tube type	Toshiba shadow mask	Sony Trinitron	Toshiba shadow mask	Hitachi shadow mask
Screen size (diagonal)	16 in.	16 in.	15 in.	19 in.
Active screen size (diagonal)	14.5 in.	14.5 in.	13.22 in.	17.8 in.
Screen dimensions (W x H, pixels)	832 x 624	832 x 624	A: 640 x 870; B: 564 x 760*	1,024 x 768
Resolution	72 dpi	72 dpi	A: 82 dpi; B: 72 dpi*	72 dpi
Vertical-scan (refresh) rate	75 Hz	75 Hz	A: 75 Hz; B: 85.2 Hz*	75 Hz
Horizontal-scan rate	50 kHz	50 kHz	68.85 kHz	60.24 kHz
Power consumption of monitor	130 watts	150 watts	100 watts	120 watts
Power consumption of display card	3.75 watts	3.75 watts	3 watts	4.5 watts
Antiglare treatment	silica oxide	silica oxide	OCLI	silica oxide
Controls				
Power switch	front	front	side	front
Brightness/contrast	front/front	software/software	side/side	front/front
Vertical position/size	front/front	NA/NA	internal/internal	NA/NA
Horizontal position/size	front/front	NA/NA	internal/internal	NA/NA
Degaussing	front	automatic	automatic	front
Vertical/horizontal convergence	NA/NA	front/front	NA/NA	NA/NA
Other				
Case dimensions (L x W x H)	16.5 x 16.5 x 16.5 in.	19 x 16 x 15 in.	17 x 12.5 x 18 in.	20 x 19 x 18 in.
Footprint	110 sq. in.	138 sq. in.	155 sq. in.	148.6 sq. in.
Weight	45 lb	60 lb	48 lb	62 lb
Software features	screen dimmer, contrast/brightness control, enlarge menus, set virtual screens, keyboard options, on-screen help	screen dimmer, contrast/brightness control, enlarge menus, set virtual screens, keyboard options, on-screen help	monitor rotation, dynamic desktop, enlarged menu font, screen capture, screen saver	hardware pan and zoom, extended-desktop modes: 1,024 x 896; 2,048 x 896; 4,096 x 896; 8,192 x 896
Warranty	1 year	1 year	1 year	3 years
Company	E-Machines 9305 S.W. Gemini Dr. Beaverton, OR 97005 (800) 344-7274 (503) 646-6699	E-Machines 9305 S.W. Gemini Dr. Beaverton, OR 97005 (800) 344-7274 (503) 646-6699	Radius 1710 Fortune Dr. San Jose, CA 95131 (800) 227-2795 (408) 434-1010	RasterOps 2500 Walsh Ave. Santa Clara, CA 95051 (800) 729-2656 (408) 562-4200

*The Radius Color Pivot software allows two modes of operation for the ColorPivot: Mode A sets the resolution to 82 dpi for applications that need high screen resolution, and mode B sets the resolution to 72 dpi for WYSIWYG applications.



PC MAGAZINE EDITORS' CHOICE November 28, 1989 Wacom SD-421L

MacUser 1·9·8·9 EDITORS' CHOICE HONORABLE MENTION

MacWEEK 1990
Wacom SD-420L
Wacom Inc.

MacUser
June 1990
SD-510

The WACOM TABLET

With the cordless pen that writes like a brush.

"The better the tools, the better the artist." That's how a successful artist explained it when asked why he believes a famous illustrator from an earlier time would have been even more creative with the Wacom Tablet.

It's certainly true for Mac artists today. For the Wacom Tablet brings the new dimension of **creative pressure** to computer graphics. With Wacom's pressure-sensitive pens, the harder you press, the thicker a line becomes. Or you can control the color, density, or even "wetness" and dryout speed, depending on software.

Now you can use pressure with Adobe Photoshop, ColorStudio 1.1, Digital Darkroom 2.0, Easy Color Paint 2.0, Fractal Design Painter, Pixel Paint Professional 2.0, Studio/32, Time Arts Oasis and more.

A Wacom pen is a joy for artists. It is ultralight (just 1/3 ounce as there are no batteries or magnets) and very natural and responsive since there's no cord to hinder your freedom.

Vector Drawing. You don't need pressure to benefit by using the Wacom Tablet. Many artists are discovering they can draw faster and more naturally with vector programs such as FreeHand and Illustrator as well as Fontographer.

New. Pressure-sensitive Vector Drawing. Now, with Aldus FreeHand 3.1 and the Wacom Tablet, graphic artists also can use hand pressure to vary the line widths of strokes drawn with the freehand tool.

Isn't it time you, too, benefited from using the Wacom Tablet?

WACOM

Specializing since 1983 in the world's finest cordless digitizers.

Wacom Technology Corporation
501 S.E. Columbia Shores Blvd.
Vancouver, WA 98661; Tel: (1) 800-922-6613

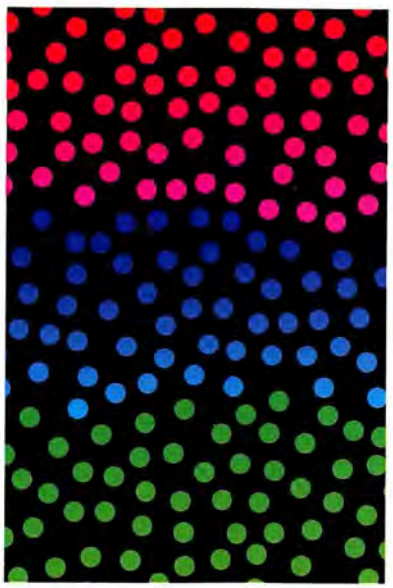
The Wacom Tablet is available in sizes 6" x 9", 12" x 12" and 12" x 18".

WACOM is a registered trademark of WACOM Co., Ltd. © Copyright 1991 by Wacom Co. Ltd. All rights reserved. Macintosh is a registered trademark of Apple Computer, Inc. Adobe Photoshop and Adobe Illustrator 3.0 are trademarks of Adobe Systems Inc. ColorStudio is a trademark of Eselte Pendaflex Corp. Digital Darkroom is a trademark of Silicon Beach Software. Fractal Design Painter is a trademark of Fractal Design Corporation. PixelPaint Professional is a registered trademark of SuperMac Technology. Studio/32 is a trademark of Electronic Arts. Oasis is a trademark of Time Arts Inc. FreeHand is a trademark of Aldus Corp. Fontographer is a registered trademark of Altsys Corp.

Table 1: Features of Color Display Systems for the Mac LC and IIsi, continued

	Mac LC SuperMac 19" SuperMatch Spectrum/8 LC ★★★★½	Mac IIsi Ehman 20" Color Trinitron ★★★½	Mirror ProView 20" ★★★	Nutmeg N19Csi ★★★½
List price				
Full system	$3,599	$2,795	$2,799	$4,599
Monitor only	$2,800	NA	NA	NA
Display card only	$799	NA	NA	NA
Street price (system tested)	$2,408	$2,795	$2,799	$2,595
Pros	Well-shielded cable.		Good picture.	Inexpensive.
Cons	Large footprint.	Buyers cannot evaluate system before purchase, because it is sold only directly. No FPU slot on video card.	PDS adapter board not included. Shipped with screws missing. Buyers cannot evaluate system before purchase, because it is sold only directly.	No FPU slot on video card.
Specifications				
Tube type	Hitachi shadow mask	Sony Trinitron	Sony Trinitron	Sony Trinitron
Screen size (diagonal)	19 in.	20 in.	20 in.	20 in.
Active screen size (diagonal)	17.76 in.	17.61 in.	17.8 in.	17.8 in.
Screen dimensions (W x H, pixels)	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768
Resolution	72 dpi	72 dpi	72 dpi	72 dpi
Vertical-scan (refresh) rate	75 Hz	78 Hz	78 Hz	78 Hz
Horizontal-scan rate	60.24 kHz	64 kHz	64 kHz	64 kHz
Power consumption of monitor	135 watts	150 watts	150 watts	150 watts
Power consumption of display card	4 watts	3.6 watts	3.6 watts	3.6 watts
Antiglare treatment	silica oxide	Asahi coating	Asahi coating	Asahi coating
Controls				
Power switch	front	front	front	front
Brightness/contrast	none/none	front/front	front/front	front/front
Vertical position/size	front/front	side/side	side/side	side/side
Horizontal position/size	front/front	side/side	side/side	side/side
Degaussing	front	side	side	side
Vertical/horizontal convergence	NA/NA	side/side	side/side	side/side
Other				
Case dimensions (L x W x H)	19.5 x 19 x 18 in.	21 x 19 x 19 in.	21 x 19 x 19 in.	21 x 19 x 19 in.
Footprint	145 sq. in.	113 sq. in.	113 sq. in.	113 sq. in.
Weight	59.4 lb	85 lb	85 lb	85 lb
Software features	pan and zoom, switch menu bar, turn acceleration on/off	pseudo-FPU	pop-up menus, screen saver, large cursor, large menu bar, screen copy	Mac system-software features only
Warranty	display, 3 years; card, 5 years	1 year	1 year	1 year
Company	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202	Ehman P.O. Box 2126 Evanston, WY 82930 (800) 257-1666 (307) 789-3830	Mirror Technologies 2644 Patton Rd. Roseville, MN 55113 (800) 654-5294 (612) 633-4450	Nutmeg Systems 25 South Ave. New Canaan, CT 06840 (800) 777-8439 (203) 966-3226







Introducing a few surprises you won't find in other $2,000 scanners.

There are certain things you'd expect from a 600 dpi color scanner. Rapid speed. A choice of 24-bit color or 256 shades of gray. Exceptional optical quality.

But nothing you've learned about other scanners will have prepared you for the new UC630, by UMAX.®

The items above are a good example.

The lamp: There's one inside the UC630. Only one. Most scanners have three. And because each of those three lamps wears out at different rates, next month's scans may be weaker in reds than today's. A couple months later, it might be the greens that suffer.

Eventually, our single lamp wears out too. That's unavoidable. But thanks to



UMAX UC630 color scanner

our auto-calibration, you'll never have to put up with off-color scans.

The dots: The UC630 outputs 600 of them to an inch. Other vendors choose to sell 300 dpi scanners that use software to bump the resolution up to 600 dpi. The software manipulation works, but the image quality is perceptibly less than from a 600 dpi machine. Like ours.

And finally, what about those feet? A reference to UMAX's brutal drop test: We pick up a UC630 (in its original box), and drop it. Three feet down. And what happens next? It works. The optical mirror even realigns itself automatically.

Look, we're already out of space and haven't even touched on the UC630's speed (up to 60% faster than others), optical precision (a system given top marks by *MacUser* and *MacWorld*), or dynamic range (accurate readings of 16.8 million colors, and all 256 shades of gray). Not to mention our 24-hour turnaround for repairs, and the free Adobe Photoshop™ we include with every UC630.

So do us both a favor: Call 800-562-0311 for your nearby UMAX dealer, and come take a look.

You'll see we've kept a few other surprises for your visit.

Top Rated Scanner
–MacUser, December 1991

UMAX®
Maximize your image.™

2352 Walsh Avenue, Santa Clara, CA 95051
408-982-0771; 408-982-0776 (fax)

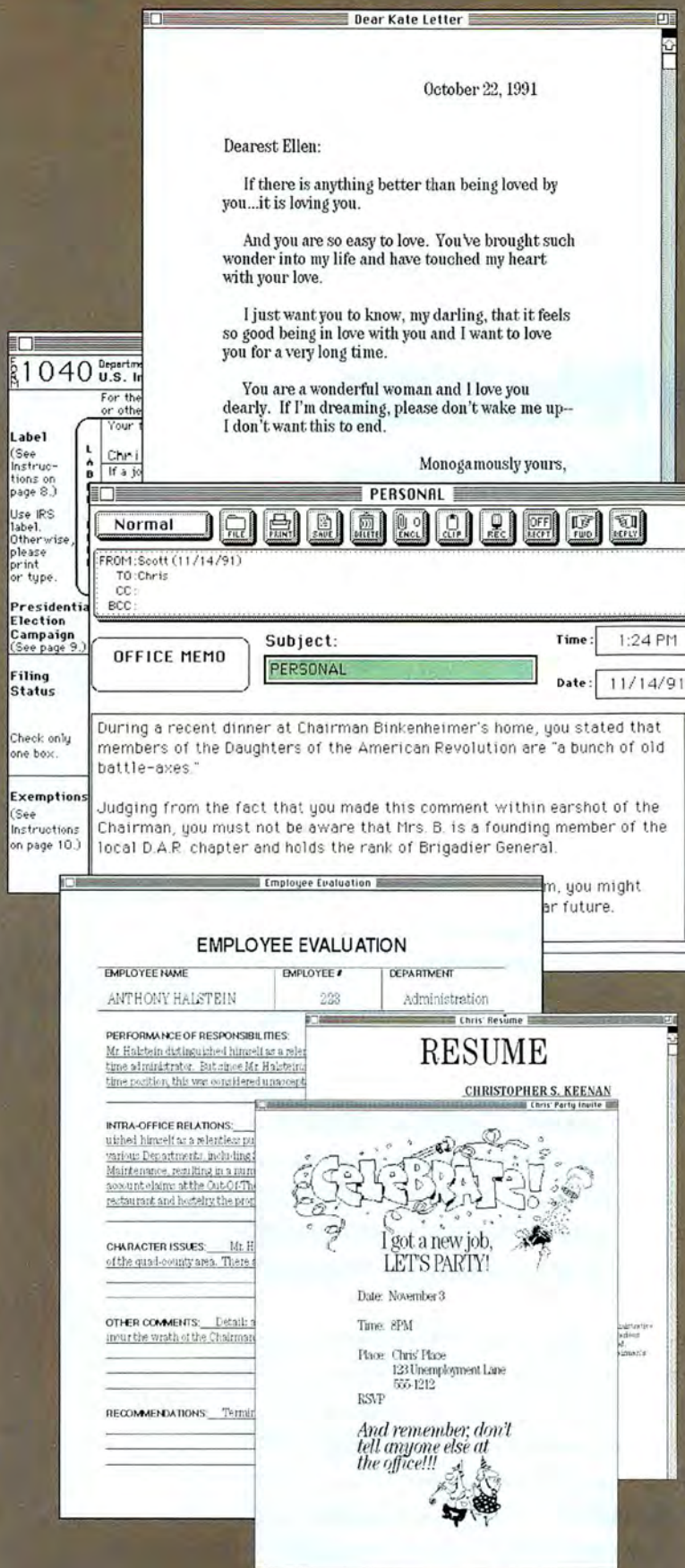
©1992 UMAX Technologies, Inc. UMAX is a registered trademark of UMAX Data Systems, Inc. "Maximize your image" is a trademark of UMAX Technologies, Inc. Other company names and product names are trademarks of their respective companies.

CIRCLE 193 ON READER SERVICE CARD.

Table 1: Features of Color Display Systems for the Mac LC and IIsi, continued

	Mac IIsi Radius Color Pivot si ★★★★½	SuperMac 19" Dual-Mode Spectrum/8•24 PDQ si ★★★★½	SuperMac 21" SuperMatch Spectrum/8 si ★★★★
List price			
Full system	$2,790	$5,599	$5,199
Monitor only	$1,995	$4,200	$4,400
Display card only	$795	$1,399	$799
Street price (system tested)	$1,947	$3,548	$3,358
Pros	Good image quality, software, and price.	24-bit capability built in. Well-shielded cable.	No PDS adapter required. Well-shielded cable.
Cons	Large footprint for size of screen.	Expensive.	Large footprint.
Specifications			
Tube type	Toshiba shadow mask	Sony Trinitron	Hitachi shadow mask
Screen size (diagonal)	15 in.	19 in.	21 in.
Active screen size (diagonal)	13.22 in.	17.76 in.	18.72 in.
Screen dimensions (W x H, pixels)	A: 640 x 870; B: 564 x 760*	1,024 x 768; 1,152 x 870	1,152 x 870
Resolution	A: 82 dpi; B: 72 dpi*	72 dpi; 82 dpi	77 dpi
Vertical-scan (refresh) rate	A: 75 Hz; B: 85.2 Hz*	75 Hz	75 Hz
Horizontal-scan rate	68.85 kHz	60.24 kHz; 68.8 kHz	58.68 kHz
Power consumption of monitor	100 watts	220 watts	145 watts
Power consumption of display card	3 watts	7.5 watts	7.5 watts
Antiglare treatment	OCLI	OCLI	OCLI
Controls			
Power switch	side	front	front
Brightness/contrast	side/side	front/front	front
Vertical position/size	internal/internal	front/NA	NA/NA
Horizontal position/size	internal/internal	NA/NA	NA/NA
Degaussing	automatic	automatic	front
Vertical/horizontal convergence	NA/NA	front/front	NA/NA
Other			
Case dimensions (L x W x H)	17 x 12.5 x 18 in.	20 x 19 x 18.5 in.	20 x 19 x 18 in.
Footprint	155 sq. in.	135 sq. in.	145 sq. in.
Weight	48 lb	72.6 lb	59.41 lb
Software features	monitor rotation, dynamic desktop, enlarged menu font, screen capture, screen saver	pan and zoom, switch menu bar, turn acceleration on/off	pan and zoom, switch menu bar, turn acceleration on/off
Warranty	1 year	display, 3 years; card, 5 years	display, 3 years; card, 5 years
Company	Radius 1710 Fortune Dr. San Jose, CA 95131 (800) 227-2795 (408) 434-1010	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202

*The Radius Color Pivot software allows two modes of operation for the ColorPivot: Mode A sets the resolution to 82 dpi for applications that need high screen resolution, and mode B sets the resolution to 72 dpi for WYSIWYG applications.



Your Mac can say a lot about you.

If somebody sat down at your Mac and started snooping around your disk, which would embarrass you more?

The details of your love life? Your resume? Your adjusted gross income?

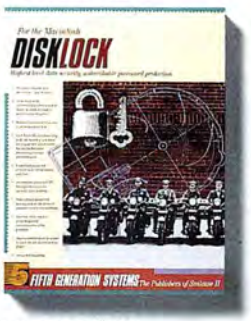
How about the Confidential Employee Evaluation you were working on when the Boss hauled you into his office for a chat?

What? You never thought about this before? Then read on and you'll never have to think about it again.

All you'll have to think about is your password.

That's the key to DiskLock,™ the painless, yet powerful, System 7 savvy way to keep other people's noses permanently out of both your personal and professional data.

You can password-protect selected files, folders or your entire hard disk. And encrypt everything to U.S. Government DES specs.



You don't even have to be there. DiskLock blanks your screen and secures your system for you – without interrupting your applications – whenever you wander off.

When you return, it asks for your password and lets you know if anyone got curious while you were away.

If you're curious about DiskLock, or about our one-year money-back guarantee, call 1-800-666-2904.

We'll give you all the juicy details.

FIFTH GENERATION SYSTEMS, INC

CIRCLE 102 ON READER SERVICE CARD.

Practically Perfect Printing: High-Resolution PostScript Printers

You've grown accustomed to a 300-dpi typeface. But sometimes that's not good enough. MacUser Labs tests ten PostScript printers that set a high quality standard.

BY BRUCE FRASER, PAUL YI, AND THE MACUSER LABS STAFF

It's not easy to set yourself apart from the crowd these days. Thanks to the desktop-publishing boom started by Apple's original LaserWriter, everyone's turning out "near typeset quality" (300-dpi laser-printed) manifestos, memos, and newsletters by the truckload. But despite the polished look and apparent high quality of laser printing, a typeface at the 300 dpi resolution of most laser printers is still noticeably jagged. And high-contrast halftones (those with few grays) can also be unacceptably coarse.

Professional publishers know that using 300-dpi laser-printer output as a reproduction master often gives unsatisfactory results. Instead, they rely on the far-superior quality of an imagesetter's 2,540-dpi film — great for book, magazine, and other high-quality graphics printing — but film is expensive and inconvenient, putting you at the mercy of a service bureau. And bringing an imagesetter in-house — if you can afford the $30K+ capital investment — plunges you headlong into a world of darkroom chemistry, noxious fumes, and production hassles.

PHOTOGRAPHY: WALT DENSON


LaserWriter II
HEWLETT PACKARD LaserJet IIISi
Varityper VT600W

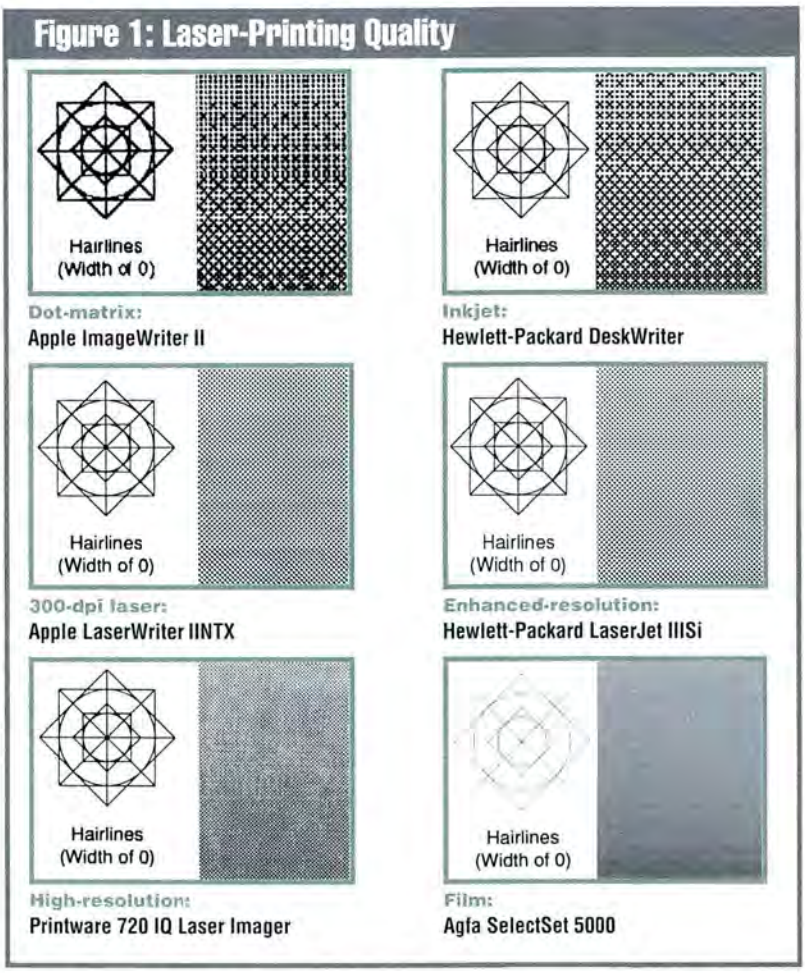


Figure 1: Enhanced-resolution and high-resolution printers produce better type than 300-dpi printers do, but they still can't match the quality of 2,540-dpi imagesetters. Under magnification, the difference between film and plain-paper type is as striking as the difference between dot-matrix and laser printing.

But you don't have to climb all the way up the quality scale. You can choose from several types of high-resolution printers. *High-resolution* printers create a bit map for printing—*rasterize* — at more than 300 dpi; *enhanced-resolution* printers use algorithms to smooth jaggies and improve the perceived resolution of a 300-dpi raster image. Vendors boost resolution in a variety of ways, and each claims advantages for its method (see Figure 1).

Vendor claims are one thing; real-world performance is another. For this report, MacUser Labs put ten high-resolution printers through a battery of tests for speed, image quality, and compatibility with the Adobe PostScript page-description language. The Apple LaserWriter IIf and IIg and the Hewlett-Packard LaserJet III and IIISi are four 300-dpi laser printers that use various enhancement techniques to boost output quality. The LaserMaster LaserMAX 800 and 1000, Printware 720 IQ Laser Imager, QMS-PS 815 MR, and Varityper VT600W are high-resolution printers, with resolutions ranging from 800 x 300 dpi to 1,200 x 600 dpi.

We also looked at the Xante AccelaWriter upgrade board for the Apple LaserWriter II printer, which increases the LaserWriter's resolution to 600 dpi.

We discovered that claims of higher resolution don't necessarily translate into improved image quality on the page. We also found that some PostScript clones are still bedeviled by compatibility problems and that improved image quality comes at the price of speed.

Performance Penalty

To put each printer through its paces, we timed the printing of a 30-page Microsoft Word document containing a few printer-resident fonts; a complex PostScript illustration created with Adobe Illustrator; a 4.5-megabyte 300-dpi gray-scale TIFF image; and a composite page containing line art, type, an EPS image, and a gray-scale TIFF image.

The runaway speed winner was the Hewlett-Packard LaserJet IIISi (see Figure 2). Its 17-page-per-minute powerhouse Canon NX engine, coupled with an Am29000 RISC processor, delivered speedy PostScript performance.

Apple's new printers were the next-fastest, but each was only slightly faster than the venerable LaserWriter IINTX, our test reference standard. As we expected, all the other printers were slower than the IINTX — higher resolution means that the printer has more information to process.

Two printers, however, were noticeably slower than the rest of the pack. The 16-megahertz 68000-based Hewlett-Packard LaserJet III simply doesn't have the horsepower to compete with the new generation of PostScript printers. The Printware 720 IQ Laser Imager was also very slow, although improvements to its RIP (raster-image processor) have made it faster now than when we last tested it (see "The Letter-Perfect PostScript Printer," October '90, Buyer's Guide page 4). Nonetheless, the Printware 720 IQ Laser Imager's slow speed is forgivable: At 1,200 x 600 dpi, it processes eight times as much data per page as the 300-dpi LaserJet III does.

Quality Worth Waiting For

But unless you're doing volume printing *on demand* — producing the number of copies you need directly from the laser printer (see the "Alternative Press" sidebar), quality is more of an issue than speed. We judged the composite page on the basis of line-art, type, and halftone-image quality. As a double-check for halftone quality, we also judged a full-page gray-scale image. To further check type quality, we printed font-sample sheets for Adobe Garamond Italic — a serif face — and Optima — a sans-serif face — at all sizes from 1 point to 36 points. Using downloadable fonts eliminated any differences that might have arisen from using different printer-resident fonts. We totaled the scores for each of these categories to obtain the final image-quality score for each printer.

The Varityper VT600W, with its 600-dpi engine, scored the best for overall image quality (see Figure 3). The Varityper printer, which has been on the market for several years, was a winner in our previous high-resolution-printer lab. We had expected that some of the new offerings would displace — or at least match — the venerable Varityper, but it scored top marks in every category. Second and third places went to the QMS-PS 815 MR and the Hewlett-Packard LaserJet IIISi, respectively. But both of these fell short of the VT600W, particularly in the halftone test. Last place went to the LaserWriter IIf, the less expensive of the two new Apple offerings.

The results demonstrate the differences among alternative resolution-enhancement techniques. The LaserWriter IIf is a 300-dpi printer that uses Apple's new FinePrint type-enhancement technology. Type produced by FinePrint was less readable, particularly at small sizes, than that produced

FinePrint versus RET

Unless you're a hyperactive photo-scanning fiend, most of your laser-printed output is likely to be text and line art.

Apple's FinePrint and Hewlett-Packard's RET (Resolution Enhancement Technology) are two techniques for improving the look of text and line art without high resolution's sacrifice in speed. FinePrint and RET are *postprocessors:* After PostScript has rendered a page into a bit map, both FinePrint and RET locate lines and text in the bit map. FinePrint employs a *pulsing* technique — the laser beam's intensity and duration are modified — to extend or contract the size of the dots and smooth the jaggies. RET, on the other hand, fills in the jaggies by adding smaller dots to the bit map. Both techniques result in smoother curves and lines — and ultimately, more-legible text.

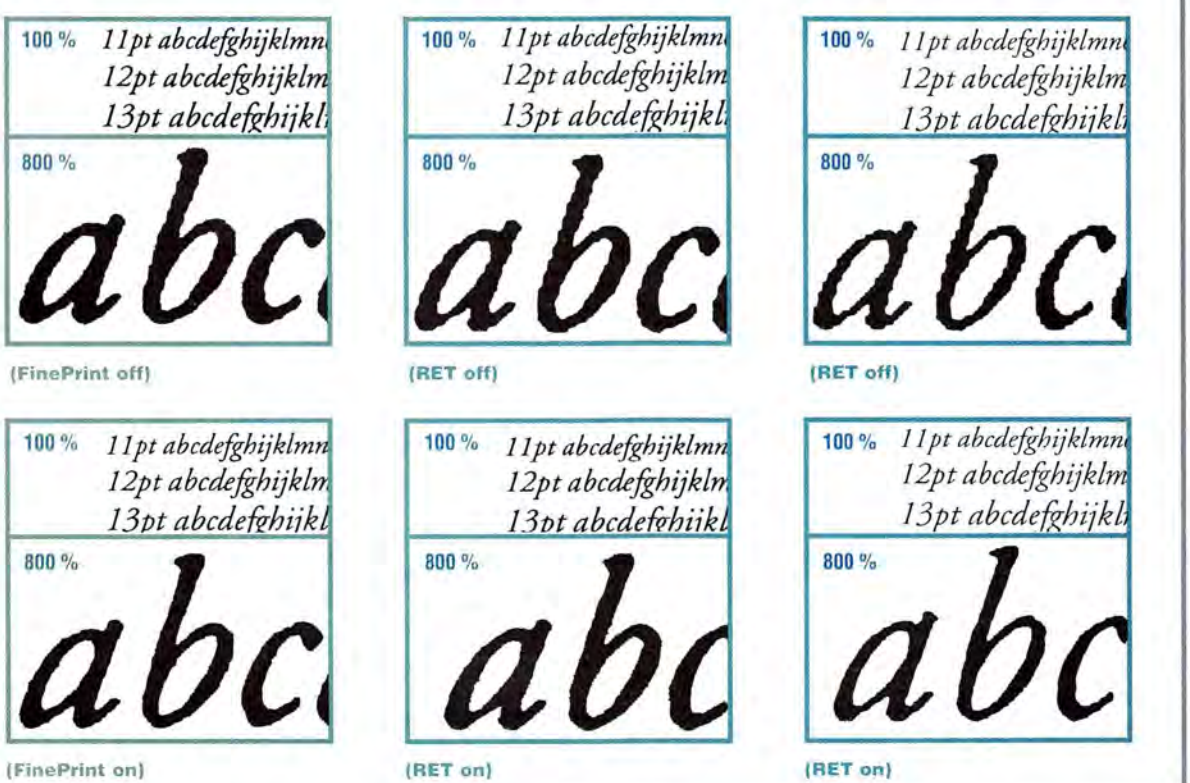


Figure 2: Printing Times

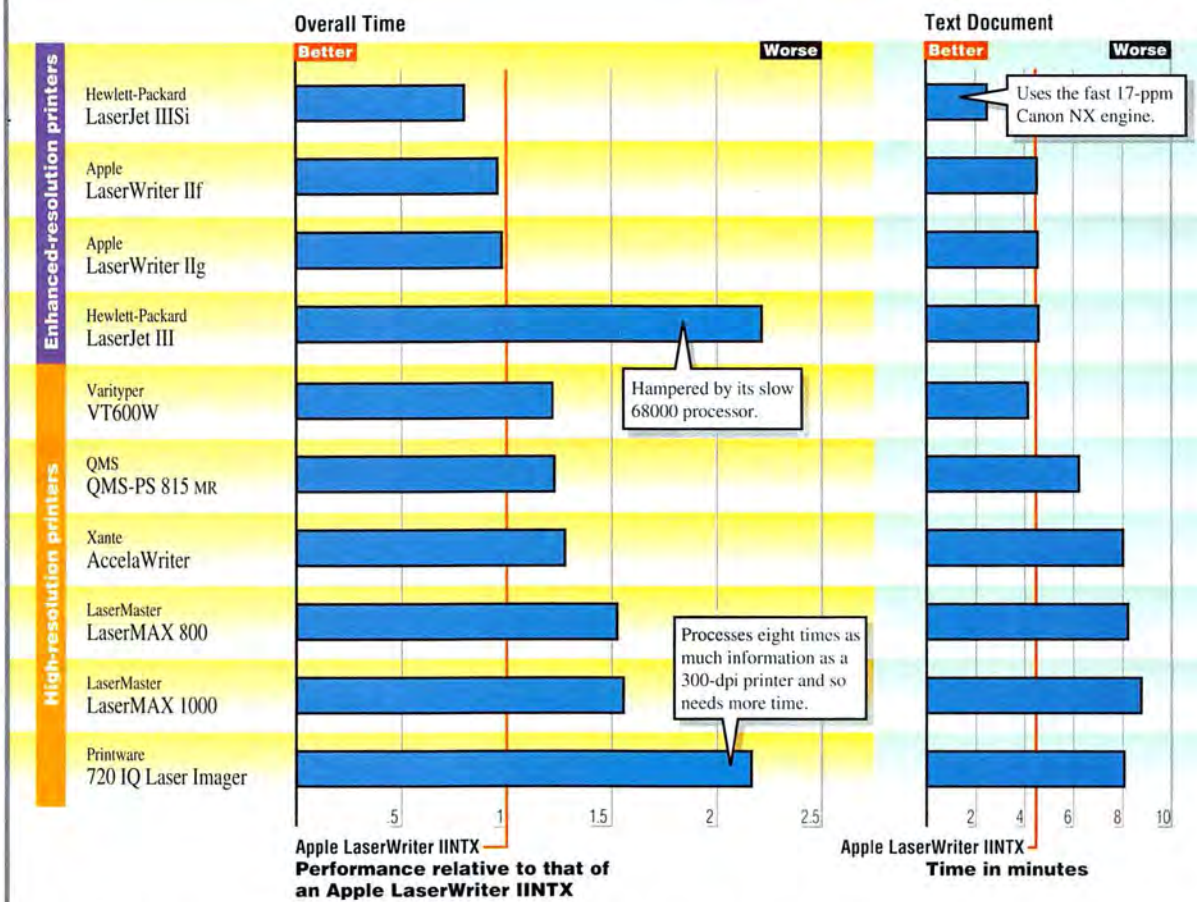


Figure 2: Boosting resolution by means of an enhancement algorithm doesn't affect a printer's speed, but laying more dots per inch on the page — as with real high-resolution printers — does: A 600-dpi printer processes four times as much information as a 300-dpi printer does. And a 600-dpi printer must lay down four times as many dots on the page, which is why high-resolution printers are generally slower than enhanced-resolution printers.

Our speed benchmark tests consisted of printing a 30-page Word text document, a complex PostScript graphic, a 4.5-megabyte gray-scale image, and a composite page. Both a printer's engine and its microprocessor affect performance.

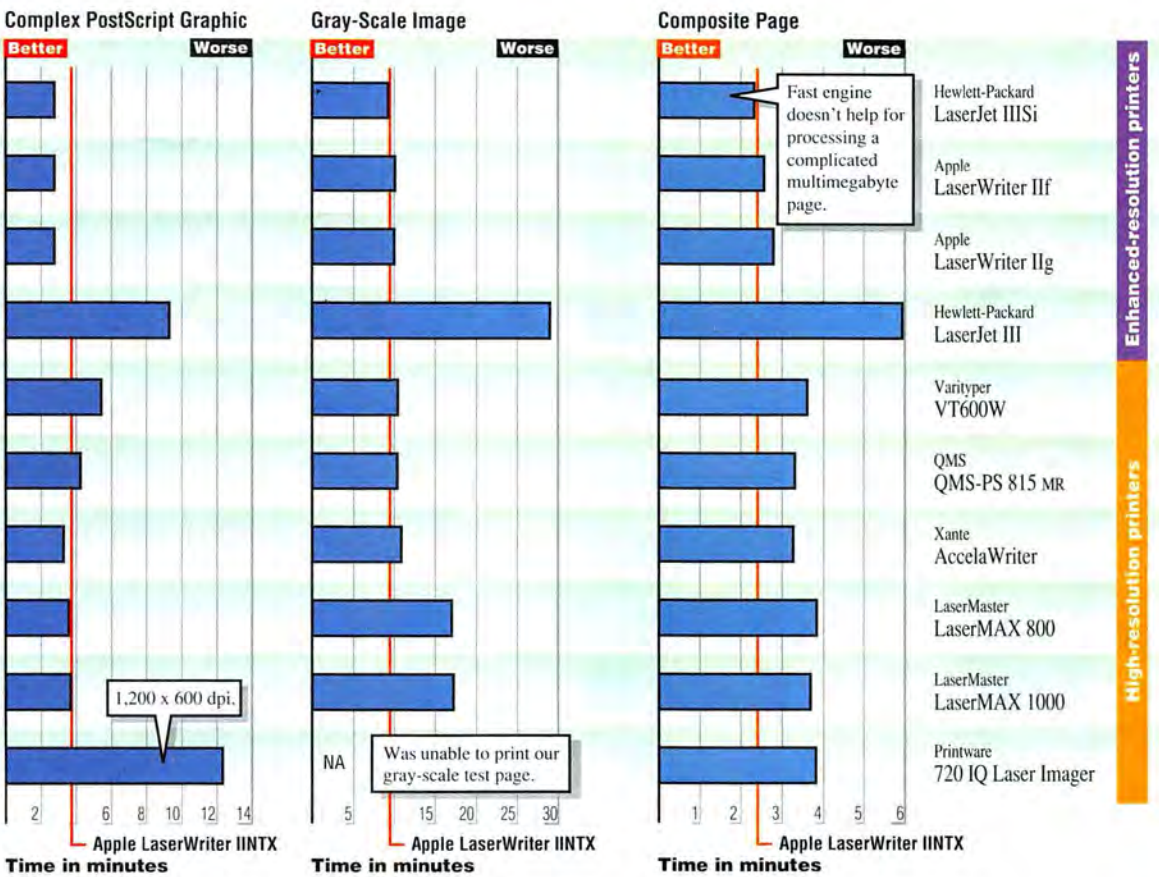
Overall Time:

The Hewlett-Packard LaserJet IIISi has the fastest engine of the bunch — the brisk 17-ppm Canon NX — and the fastest processor — the Am29000 RISC chip. The Hewlett-Packard LaserJet III is but a poor relation, with its outdated 68000 processor. Among the high-resolution printers, the Varityper VT600W's 10-ppm engine and 68020 processor moved it to the front of the pack, followed closely by the 8-ppm 68020-based QMS-PS 815 MR. The Printware 720 IQ Laser Imager couldn't print the gray-scale document, because of a memory limitation, so its overall result is interpolated from its performance in the other tests.

by Hewlett-Packard's competitor RET (Resolution Enhancement Technology) (see the "FinePrint versus RET" sidebar).

The results also show that the print engine's quality is as important as the resolution-enhancement method: Note the Canon NX-based 300-dpi LaserJet IIISi's strong showing compared with the relatively unspectacular performance of the Canon SX-based 1,000-x-400-dpi LaserMAX 1000.

Because the results vary widely among printers, it's important to clearly define the kind of output you need and set your expectations accordingly. All the printers we looked at provide acceptable quality for on-demand publishing. If you use the printer to generate camera-ready copy for reproduction on a printing press, however, the requirements are much more stringent, particularly for halftones. Although it's easy to divide the printers into three broad output-quality classes — best, medium, and worst — the printers within each class have different



Text Document:

Printing a simple 30-page Word text document tests a printer's raw engine speed. This test highlighted the Hewlett-Packard LaserJet IIISi's 17-ppm Canon NX engine — it really screamed. We were surprised by the last-place finish of the LaserMAX 800 and 1000, because both use an 8-ppm engine, as do most of the other printers.

Complex PostScript Graphic:

Our one-page Adobe Illustrator test document taxes a printer's PostScript processor. The Hewlett-Packard LaserJet IIISi's Am29000 RISC chip and the Apple LaserWriter IIg and IIf's 68030 processors proved to be the quickest. The Printware 720 IQ Laser Imager is hampered not by its 68020 processor but by the PostScript-clone interpreter it uses.

Gray-Scale Image:

The results for the LaserJet III show that it's time for Hewlett-Packard to upgrade this printer's processor. The Printware 720 IQ Laser Imager couldn't print this test, because of memory constraints.

Composite Page:

Our composite-page test combines text, graphics, and gray-scale elements to tax almost everything on the printer. The Hewlett-Packard LaserJet IIISi is again the fastest, but the most surprising showing is the speed of our reference model, the Apple LaserWriter IINTX.

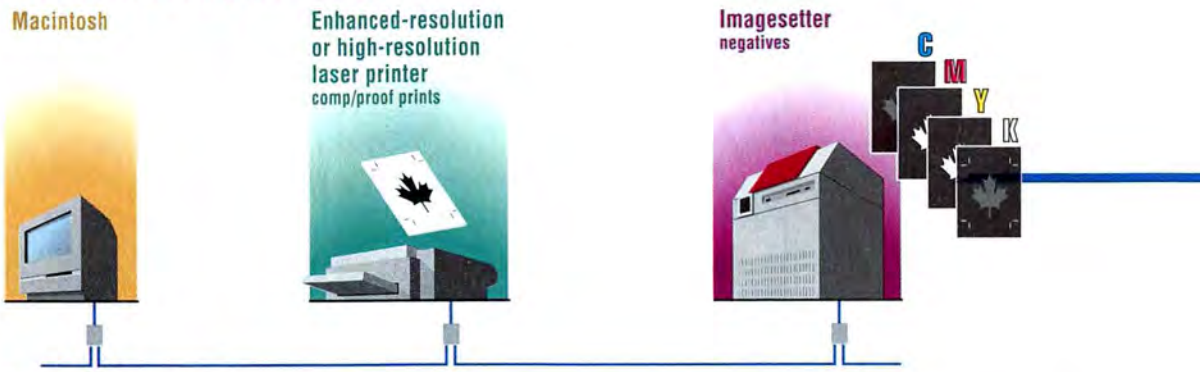
strengths and weaknesses. To pick the printer that will meet your needs, you must consider the trade-offs associated with each.

Printer Performance

Apple's new PostScript Level 2 printers, the LaserWriter IIf and IIg, feature Apple's FinePrint resolution-enhancement technology (see "Image Makers," November '91, page 98). Apple claims that FinePrint type quality approaches the look of 600-dpi laser printing. Although the type looks better than standard 300-dpi output, FinePrint type samples rated lower than all the others in our tests. Apple believes that FinePrint adheres more faithfully to the character outlines than does Hewlett-Packard's proprietary RET. This may be true — we weren't able to draw any conclusions from our test output — but apparently such claims don't translate into more-readable type. Small features plugged up on the output from both Apple printers, especially at small sizes.

Alternative Press

Traditional desktop publishing



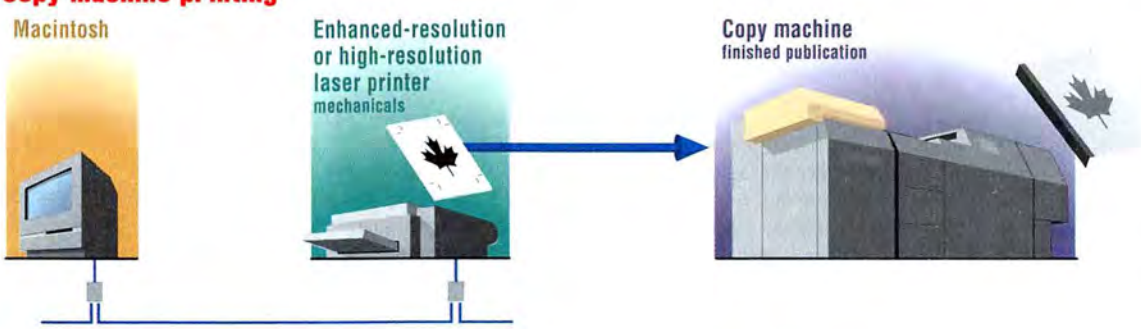
On-demand printing



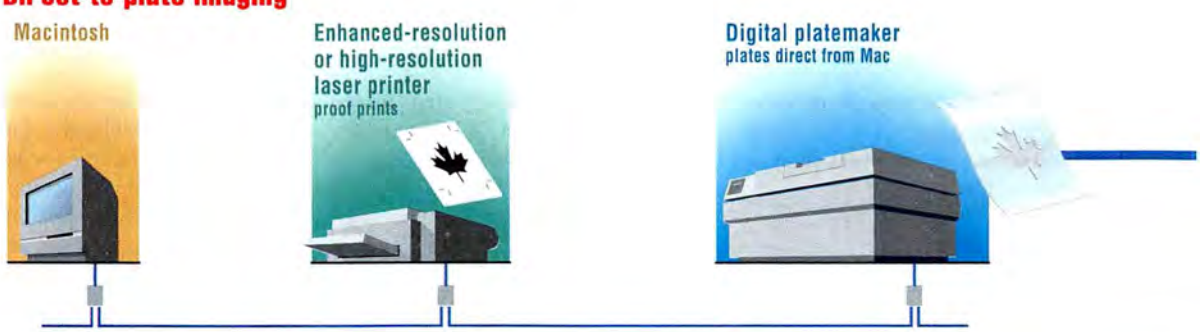
Enhanced-resolution and high-resolution laser printers enable you to meet more of your printing needs from the desktop. High-resolution output can be used for final high-quality volume printing or as originals for reproduction on a photocopier or a printing press.

Although high-resolution laser printers can't match the quality of 2,540-dpi imagesetters, plain-paper output does make suitable camera-ready copy for many print jobs. For example, because

Copy machine printing



Direct-to-plate imaging





ink *bleeds* — spreads — when it hits newsprint, the differences in quality between plain-paper-laser and imagesetter typographic output are masked. Decent plain-paper halftones take some work to produce, but plain-paper laser-printed halftones are good enough for most newspapers. DuPont has had some success in the newspaper market selling a 600-dpi laser printer made by Chelgraph UK that prints on tabloid-sized paper.

Laser-printed originals are also now of high enough quality for many business and office printing needs — employee directories, how-to manuals, memos, and the like. If you bring the entire printing process in-house, you can reap the benefit of increased control, catching and correcting problems at any stage of the process. You can also produce the number of copies you need *on demand*. On-demand printing has the advantage of economizing on paper. In traditional offset printing, setting up a printing press for a print job takes a significant amount of time and therefore money. Because setup charges comprise a relatively smaller percentage of the total cost of any job as the number of copies goes up, print buyers often order a larger print run than they actually need: When the document undergoes revision, the 2,500 extra copies in the warehouse get trashed.



If you'd rather not push your printer engine to the end of its duty cycle, use the laser printer in combination with a photocopier: Print a high-quality master copy on your enhanced-resolution or high-resolution laser printer, and then photocopy the master. In this case, the quality depends on the photocopier. The current crop of laser printers significantly raises the level of quality that can be achieved for the master copy, making the laser-printer-to-copier route viable for a wide range of documents.

There are times, however, when higher press quality is necessary. An emerging technology that makes shorter press runs economical is *direct-to-plate imaging* — each page is imaged directly onto a paper or a metal plate that goes directly on the press. Printware offers a plate-imaging system that uses the same controller as the Printware 720 IQ Laser Imager does. Direct-to-plate imaging offers large savings in setup charges, particularly for single-color print jobs — color registration isn't an issue. In this case, the laser printer plays a vital role as a proof generator. High-resolution laser printers offer a close approximation of the final page, enabling you to go to press with confidence that your print job will turn out to your satisfaction.

Although FinePrint proved somewhat lackluster, Apple's halftone-enhancing technology, PhotoGrade, exceeded our expectations. The LaserWriter IIg's 85-lpi halftones were a pleasant surprise, but the default 106-lpi halftones were little short of astonishing: They looked as good as those printed by the Laser Imager and the VT600W. PhotoGrade is also available for the LaserWriter IIf, if you upgrade to 5 megabytes of RAM, but we tested the LaserWriter IIf in its standard 2-megabyte RAM configuration, so it scored much lower than did the LaserWriter IIg. Without PhotoGrade, the LaserWriter IIf can't compete when it comes to halftones.

We were disappointed by the speed of both Apple printers; they were only slightly faster than the LaserWriter IINTX. However, Apple hasn't yet shipped a PostScript Level 2 printer driver for either printer: The drivers should be available this year and should boost performance considerably.

Another performance booster — an EtherTalk port — is already on the LaserWriter IIg. If you have Macs networked via high-speed EtherTalk, you can cable a LaserWriter IIg directly into the network rather than queuing up print jobs at LocalTalk speeds.

If you're looking for speed, the Hewlett-Packard LaserJet IIISi is a strong contender for your printer dollar. By far the fastest of the printers we tested, the LaserJet IIISi also made an excellent showing in all the image-quality categories except for the halftone category (it does print halftones as well as does any other high-quality 300-dpi laser printer, though). Hewlett-Packard's RET is limited to improving the look of type and line art, not halftone screens.

But improve the look of type and line art it does. Output samples for the LaserJet IIISi show a clear distinction between .25-point lines and hairlines. Type is readable even at a minuscule 2.5-point size. One caveat: Other vendors have accused Hewlett-Packard's RET of distorting the shapes of characters and exaggerating and

Figure 3: Image Quality

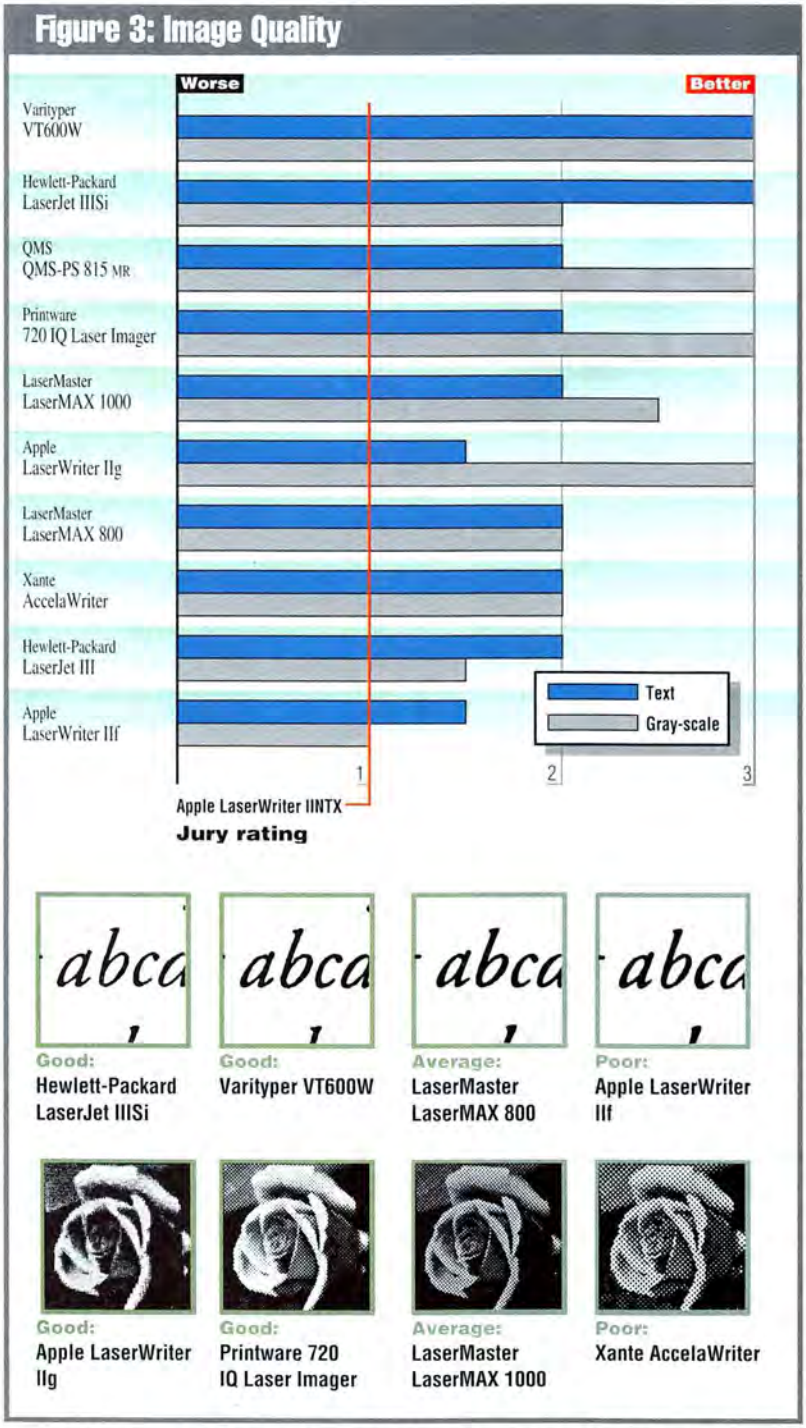


Figure 3: Our jury rated the output samples on a scale from 1 to 3. The image quality from all the printers proved superior to that of the Apple LaserWriter IINTX, a standard in 300-dpi output. In general, output from the high-resolution printers was superior to that from the resolution-enhanced 300-dpi printers, with two exceptions. The Hewlett-Packard LaserJet IIISi really showed how good its new Canon engine is when coupled with RET. The IIISi was on a par with the high-resolution printers in text quality, whereas the Apple LaserWriter IIg with PhotoGrade matched the high-resolution printers in halftone quality.

sometimes even adding serifs. We didn't see these effects in our tests, but we printed a limited range of fonts. If you value font fidelity, make sure that the IIISi's renditions of your selected fonts are satisfactory. If your primary consideration is type legibility, the IIISi will serve you well.

Hewlett-Packard's RET can take only part of the credit for the LaserJet IIISi's high marks, however. The Canon NX printer engine also plays a role, as evidenced by the fact that the Hewlett-Packard LaserJet III—which also uses RET but which is based on the older Canon SX engine—tied for second-to-last place for text quality. Although it produced better-looking type than did the LaserWriter IIf and IIg, the LaserJet III is very slow for a 300-dpi printer. Its $3,395 list price is aggressively discounted, but you'll find better deals on other PostScript printers. All in all, the LaserJet III was a disappointment.

The most disappointing printers of the bunch, however, were the LaserMaster LaserMAX 800 and 1000. The LaserMAX PostScript-compatible interpreter — ETI (Enhanced TrueImage) — is housed on a NuBus card you must install in a NuBus-equipped Mac. The host Mac then appears in the Chooser, just as the printer would. If you're using a LaserMaster printer on a network, other Macs connect and print via the host Mac. LaserMaster claims that you can use the host Mac while printing is taking place in the background. Technically speaking, this is true, but background printing causes even the simplest task to slow the Mac to a crawl.

Both printers fell solidly in the middle of the pack on both the type and the halftone tests. The LaserMAX 1000 produced slightly better halftones than did the LaserMAX 800, but they did about equally well on the type test. Both printers did poorly on the line-art test, with jaggies on the hairlines and the .25-point lines. And both printers were slow, finishing ahead of only the slow Hewlett-Packard LaserJet III and the Printware 720 IQ Laser Imager.

At 1,200 x 600 dpi, the Printware 720 IQ Laser Imager was the highest-resolution printer we tested and so had good reason to be slow. Unfortunately, the Laser Imager's Printstyle 2.2 PostScript-clone interpreter is plagued by PostScript-compatibility problems: The Laser Imager printed the finest hairlines of all the printers, but it rendered the .25-point lines at the same width as the hairlines.

In general, the Laser Imager produced type that equaled or surpassed that produced by the VT600W. But at sizes smaller than 5 points, the type began to drop out — again alerting us to a PostScript problem. In this case, the interpreter apparently wasn't making correct use of Type 1-font *hints,* which help render clean typefaces at minute point sizes.

One other problem: The Laser Imager couldn't print the 300-dpi gray-scale TIFF image at all. It did print a 200-dpi version of the image, however, which suggests that this printer needs more than the 8 megabytes of RAM it ships with. To the Laser Imager's credit, the output from the lower-resolution scan was rated on a par with the top-ranking images.

Of all the printers we tested, the QMS-PS 815 MR came closest to matching the Varityper VT600W. The VT600W had slightly superior type image quality, particularly at small point sizes, and its 10-ppm engine nudged it ahead of the QMS printer in overall speed. But thanks to the higher clock speed of its 68020 processor, the 815 MR was considerably faster at printing the complex PostScript page. The 815 MR is also just over a third as expensive as the VT600W and has a longer-rated engine life.

The 815 MR also features QMS' auto-port-switching technology, first introduced on the QMS-PS 410. We were concerned by reports that the QMS-PS 410 "disappears" from AppleTalk networks, so we kept four Macs printing to an 815 MR on a busy Mac network. We experienced no problems; however, we didn't test it in a multiplatform environment.

The Varityper VT600W received the highest possible rating in each of our image-quality tests, a distinction shared by no other printer. With a 10-ppm engine and a 16-megahertz 68020 processor, it performed respectably in the time tests as well, finishing slightly ahead of the other 600-dpi printers.

Despite its outstanding ratings for image quality, the Varityper VT600W isn't flawless. It has an automatic toner-replenishment feature that recycles excess toner as well as any dust that might come off the paper. You'll want to choose your paper carefully for this one. And at $14,995, the VT600W is the most expensive printer we tested. However, it does support tabloid (11 x 17-inch) paper and the hefty price tag includes installation and setup by Varityper.

The Xante AccelaWriter is a $1,695 upgrade board for the Apple LaserWriter II series that boosts the printer's resolution to 600 dpi. The PhoenixPage PostScript-clone interpreter is one of the more reliable we've come across, and the resulting output is a definite improvement over unenhanced 300-dpi output. Apple is also offering upgrade boards for the LaserWriter II series. For $2,399 you can upgrade a LaserWriter II to a IIg, or for about the same price as the Xante AccelaWriter, you can upgrade to a IIf ($1,399). You get PostScript Level 2, PhotoGrade, FinePrint — and EtherTalk with the IIg — as well as the security of owning a mainstream Apple product. We expect that choosing an upgrade board will be easy for most LaserWriter II owners.

Fit to Print

Memos printed on daisywheel and dot-matrix printers tend to look crude today, thanks to a printer called the

On the Horizon

Apple sets a new standard for laser printing with its LaserWriter IIf and IIg. Thanks to its proprietary resolution-enhancement techniques — FinePrint and PhotoGrade — these 300-dpi plain-paper laser printers produce pages that match the quality of much-higher-resolution laser printers. FinePrint and PhotoGrade will undoubtedly become a standard feature in future Apple printers. In the meantime, other vendors have quickly responded with their own better-than-300-dpi printers.

NewGen has introduced the TurboPS series, a new line of laser printers featuring the company's IET (Image Enhancement Technology). IET smooths jaggies and enhances gray-scale-image printing in much the same fashion as FinePrint and PhotoGrade do. The TurboPS/840e ($5,495) prints at 800 x 400 dpi and includes IET as a standard feature. The TurboPS/840 ($4,795) and TurboPS/630 ($3,495) print at 800 x 400 and 600 x 300 dpi, respectively, and offer IET as an option. The Weitek-RISC-chip-based printers in the TurboPS series use a PostScript-compatible interpreter. NewGen Systems, 17580 Newhope Street, Fountain Valley, CA 92708; (714) 641-8600.

LaserMaster has announced TurboGray, a PhotoGrade-type halftone-enhancement technology. TurboGray will be available as a software upgrade for the existing line of LaserMaster printers, including the LaserMAX 800 and 1000. At press time, information on pricing and availability was still pending. LaserMaster Corp., 7156 Shady Oak Road, Eden Prairie, MN 55344; (612) 944-9151.

Canon made news not with its own complete PostScript printer but when it announced the OEM availability of the Canon NX engine — the engine Hewlett-Packard uses in the LaserJet IIISi. A printer's engine is a key factor in image quality, and the 17-ppm Canon NX is by far the best of the 300-dpi engines. In our tests, the type quality produced by the printer with this engine rivaled that of the 1,200-x-600-dpi Printware 720 IQ Laser Imager, which our jury decided was the overall best. Canon NX printers can also have two 500-sheet paper cassettes, a duplex mode, and an offset-exit-tray mechanism for separating multiple jobs. One wonders how FinePrint and PhotoGrade would fare with such an engine. Canon, One Canon Plaza, Lake Success, NY 11042; (800) 323-0766 or (516) 488-6700.

LaserWriter, which Apple introduced in 1984. But when you compare a LaserWriter's 300-dpi plain-paper output to 2,540-dpi imagesetter output, you can see just how unpolished laser printing really is — it suffers from fuzzy rules and jagged type, for example. And using 300-dpi output as camera-ready copy for reproduction often produces disappointing results.

Fortunately, vendors are improving the output quality of plain-paper laser printers: High-resolution printers use a bit map that contains more dots per inch, and enhanced-resolution printers use intelligent algorithms to smooth curves and lines in a 300-dpi bit map. And Apple has set the standard for laser printing once again by building its proprietary enhancement technologies — PhotoGrade and FinePrint — in to its newest generation of laser printers. Although both these enhancement techniques fall short of the quality offered by true high-resolution printers, they are significant steps up from standard unenhanced 300-dpi output.

Bruce Fraser is the author of *Adobe Illustrator 3.0 Complete* and *Using FreeHand 3.0*. Paul Yi is a former *MacUser* associate editor currently pursuing a career as a consultant and technical writer.

The Bottom Line

Until recently, most of us had to rely on service bureaus for better-than-300-dpi output. Graphic designers had to be satisfied with showing clients a 300-dpi laser-printed brochure mockup and hoping that they could imagine the better quality that would ultimately be produced by a 2,540-dpi imagesetter. Newsletter publishers could choose to run 500 original copies on their 300-dpi laser printers — all the while realizing that they were significantly shortening their equipment's life. Or they could use the 300-dpi output as camera-ready art and be disheartened by the result — blotchy serifs and filled-in halftones, for example.

But a new wave of printers that go beyond 300-dpi — either through enhancement techniques or by increasing the number of dots on the page — is raising the standard of laser-print quality by several notches. These printers offer an alternative to buying imagesetting services outside or compromising on quality: For many types of print jobs, the resolutions offered provide perfectly acceptable results. Of the ten printers we tested, five make it onto our recommendation list.

The 600-dpi **Varityper VT600W** ($14,995 direct) provides the best all-around image quality and runs at acceptable although unspectacular speeds. On the negative side, it's expensive — although Varityper does sell reconditioned units for less than $10,000 — and sometimes cranky and its foundation technology is now four years old. Include the cost of a service contract in your budget if you choose this printer.

The 300-dpi **Apple LaserWriter IIf** ($3,599 list, $2,829 street) offers only slightly better-looking type than previous Apple printers do. But when you stack it against the IINTX, the IIf is faster and holds the promise of even better performance when PostScript Level 2-aware software and printer drivers become available — and it costs $2,000 less than the IINTX. With a 4-megabyte RAM upgrade, you get PhotoGrade resolution enhancement as well.

Apple's new flagship printer, the 300-dpi **LaserWriter IIg** ($4,599 list, $3,599 street) is a little faster still, but its outstanding feature is PhotoGrade, which produces halftones that we would have sworn were impossible to get from a 300-dpi printer. The IIg also has Ethernet built in.

If you're a LaserWriter II owner looking to upgrade, buy the IIf upgrade (the 5-megahertz difference in clock speed between the IIf and IIg is barely significant) and then buy an extra 4 megabytes of third-party RAM to get the benefit of PhotoGrade.

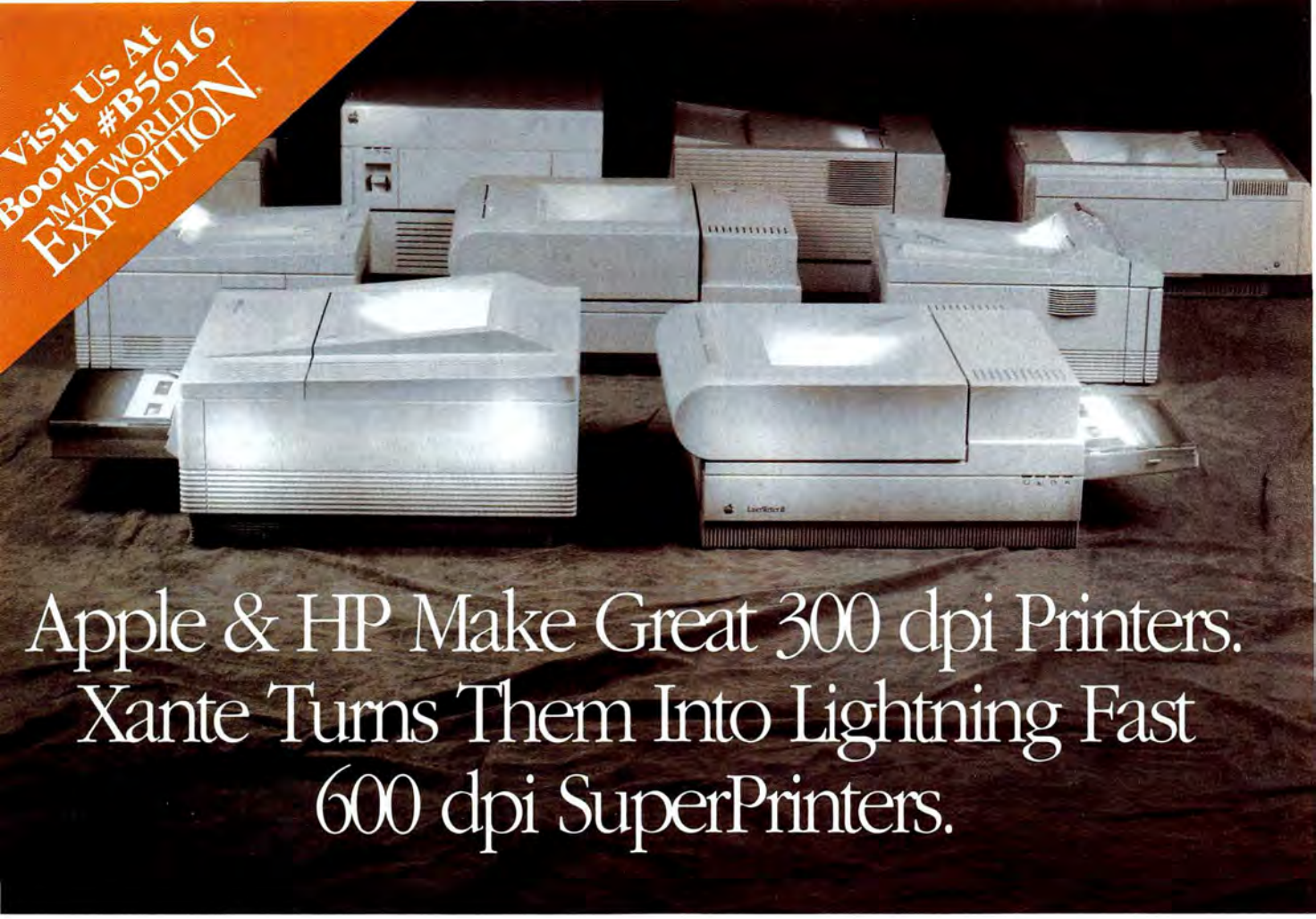
If speed is more important to you than halftone quality, the 300-dpi **Hewlett-Packard LaserJet IIISi** ($6,995 list, $4,077 street) is a natural choice. If you use your printer to generate camera-ready copy for printing on newsprint or for quick-print jobs, we suspect that you'd be hard-pressed to tell the difference between type and line art generated by a LaserJet IIISi and that produced by a Varityper VT600W, once the pages come off the press — and you'll have a printer that runs 40 percent faster at slightly less than half the cost.

The 600-dpi **QMS-PS 815 MR** ($5,495 list, $3,895 street) comes close to the Varityper VT600W in both speed and overall image quality, again at a fraction of the cost. You can also switch the 815 MR's resolution from 600 dpi to 300 dpi for faster printing when you don't need the higher resolution. The QMS-PS 815 MR also offers automatic port switching, which is a boon in multiplatform environments.



Any one of these five printers will do a great job of producing an image (left to right): the Varityper VT600W, Apple LaserWriter IIf, Apple LaserWriter IIg, Hewlett-Packard LaserJet IIISi, and QMS-PS 815 MR.

Visit Us At Booth #B5616 MACWORLD EXPOSITION



Apple & HP Make Great 300 dpi Printers. Xante Turns Them Into Lightning Fast 600 dpi SuperPrinters.

Now easy-to-install Accel-a-Writer™ controllers from Xante® turn any Apple® LaserWriter® or HP® LaserJet® into a true 600 x 600 dpi PostScript® compatible SuperPrinter.

Affordably.

Whether you're the owner of a LaserWriter or LaserJet, the Accel-a-Writer delivers other important advantages, too. Like an advanced RISC processor that makes your printer assemble text and graphics 4 to 12 times faster. Expanded connectivity for simultaneous operation of Apple® Macintosh®, IBM®/compatibles and other popular workstations. A SCSI port to plug in external hard drives for permanent storage of downloadable fonts and programs. And dual page processing which gives your printer the ability to print a page while assembling another. If you want all the speed and connectivity but don't currently need 600 x 600 resolution, Xante even makes an Accel-a-Writer for you at just $1295!

Call Xante toll-free to order the Accel-a-Writer you need today. And get the professional advantages of increased resolution, speed and connectivity, affordably.

Accel-a-Writer™

FEATURES	XANTE ACCEL-A-WRITER	HP LASERJET I,II,IIP,III,IIIP	APPLE LASERWRITER IIg	QMS-PS® 815MR™	LASERMASTER™ 1000 PERSONAL TYPESETTER
True 600 x 600 dpi	√			√	
RISC Processor	√				
Standard 6MB RAM	√			√	√
SCSI Connectivity	√		√		
Simultaneous Interfacing (AppleTalk, serial, parallel)	√			√	
Dual Page Processing	√			√	
Advanced Memory Management	√			√	
PostScript Compatibility	√		√	√	?

Free Video Tape!
"How to Install your Accel-a-Writer" Fast and Easy.

1-800-926-8839

XANTE
Innovations In Output

4½ "The Accel-a-Writer II board turns any LaserWriter II into a graphics speed demon..."
MacUser Magazine, Sept. 1991

CIRCLE 108 ON READER SERVICE CARD.

©1991 XANTE Corporation. XANTE Accel-a-Writer is a trademark of XANTE Corporation. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTE Corporation: 2559 Emogene St., Mobile, AL 36606, Post Office Box 16526, Mobile, AL 36616-0526 USA, TEL. 205/476-8189

Table 1: Features of High-Resolution PostScript Laser Printers

				
	Apple LaserWriter IIf ♦♦♦♦	**Apple LaserWriter IIg** ♦♦♦♦	**Hewlett-Packard LaserJet III** ♦♦	**Hewlett-Packard LaserJet IIISi** ♦♦♦♦
List price	$3,599	$4,599	$3,395	$6,995
Street price	$2,829	$3,599	$2,457	$4,077
Pros	PostScript Level 2. Additional memory enables PhotoGrade.	PostScript Level 2. Excellent halftone quality. Ethernet.	RET gives good text quality.	Fastest printer. Engine and RET combine for excellent text quality.
Cons	Image quality inferior to that of other printers in review.		Slow.	Bulky.
Specifications				
Laser-engine model	Canon SX	Canon SX	Canon SX	Canon NX
Engine speed	8 ppm	8 ppm	8 ppm	17 ppm
Engine life (pages)	750,000	750,000	750,000	not specified
Monthly duty cycle (pages)	16,000	16,000	16,000	50,000
Microprocessor, clock speed	68030, 20 MHz	68030, 25 MHz	68000, 16 MHz	Am29000, 16 MHz
PostScript version or clone	Level 2	Level 2	Level 1, version 52.3	Level 1, version 52.3
Resolution	300 dpi	300 dpi	300 dpi	300 dpi
Memory (standard, maximum)	2 MB, 32 MB	5 MB, 32 MB	2 MB, 5 MB	5 MB, 17 MB
No. of resident fonts	35	35	35	35
Interfaces	LocalTalk, serial, parallel	LocalTalk, serial, parallel	AppleTalk, serial, parallel	AppleTalk
Printer emulations	PCL4+	PCL4+	PCL5, ProPrinter, Epson	PCL5, ProPrinter, Epson
Paper handling				
Paper weight	16 – 36 lb	16 – 36 lb	16 – 36 lb	16 – 36 lb
No. of trays, page capacity	1, 200	1, 200	1, 200	2, 500 each
Paper sizes	letter, legal, A4, exec., envelope	letter, legal, A4, exec., envelope	letter, legal, A4, exec., envelope	letter, legal, A4, exec., envelope
Other options	NA	NA	duplex printing, $695	NA
Miscellaneous				
Toner (price, copies)	$119, 4,000	$119, 4,000	$125, 4,000	$169, 8,000
Dimensions (L x W x H, in.)*	19 x 20 x 9	19 x 20 x 9	19 x 18 x 8.5	21.6 x 23 x 16.5
Weight	45 lb	45 lb	50 lb	106 lb
Warranty	1 year	1 year	1 year	1 year on-site
Service contract (on-/off-site)	none	none	$264/$180	$540/none
Company	Apple Computer, Inc. 20525 Mariani Ave. Cupertino, CA 95014 (408) 996-1010	Apple Computer, Inc. 20525 Mariani Ave. Cupertino, CA 95014 (408) 996-1010	Hewlett-Packard Co. 19310 Pruneridge Ave. Cupertino, CA 95014 (800) 752-0900 (408) 323-2551	Hewlett-Packard Co. 19310 Pruneridge Ave. Cupertino, CA 95014 (800) 752-0900 (408) 323-2551

*Without paper tray.

Get Quadra SCSI Performance and More...

PLI QUICKSCSI BOARD

PERFORMANCE

The PLI QuickSCSI board improves your Mac's SCSI performance by up to 300%.

- **UP TO 4.4MB/SEC SUSTAINED TRANSFER RATE**

Eliminate the Macintosh SCSI bottleneck. That's more than twice as fast as the Mac's built-in SCSI*, because QuickSCSI uses newer, faster SCSI technology, including SCSI-2! Get all the performance your fast drives can give - use QuickSCSI. See the chart below for QuickSCSI's real world performance with a PL 1.3GB using an Elite drive from Seagate.

Set-up is easy, because QuickSCSI is compatible with most popular disk drives, including internals.

- **UP TO 14 SCSI DEVICES**

You can install QuickSCSI in any NuBus Macintosh. And because QuickSCSI doesn't disable the built-in SCSI, you can have up to 14 SCSI devices online at a time. (If you need even more devices, just add more QuickSCSI cards to your computer.)

PLI's MiniArray support

The MiniArray uses parallel read/write transfers to multiple drives using a single SCSI ID number. The transfer rate is up to 6MB/sec.

MIRRORING

QuickSCSI provides Mirroring

- **AUTOMATIC, CONTINUOUS BACKUPS**
- **SUPPORTS DISCONNECT / RECONNECT**
- **UP TO 3 SETS OF MIRRORED DRIVES**
- **IN CASE OF A DRIVE FAILURE QUICKSCSI SWITCHES AUTOMATICALLY TO THE OTHER DRIVE**
- **PARTITIONING**

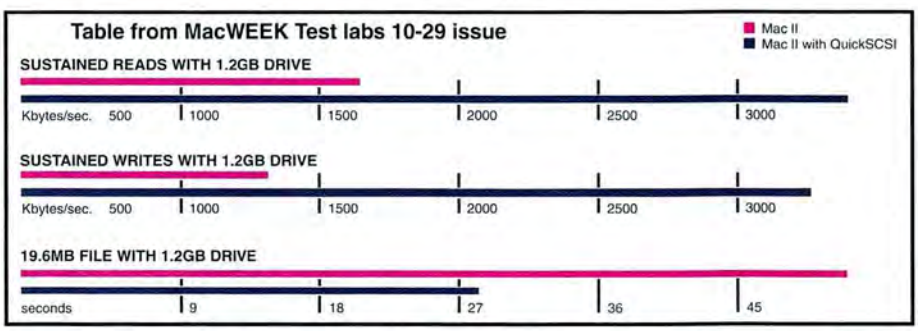
Everything you write to the main drive will be written to a second drive at the same time. And since QuickSCSI supports disconnect/reconnect with mirrored pairs, mirroring your drives improves their access time! Partitioning allows a smaller capacity drive to be mirrored into a partition of a larger capacity drive.

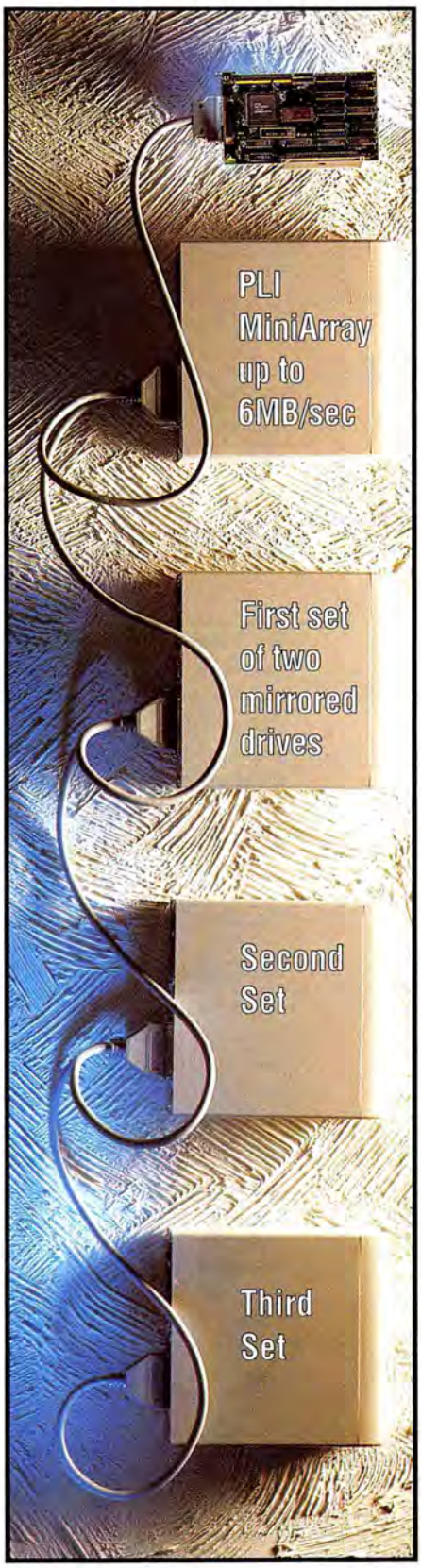
You never have to re-create data or waste time restoring.

Mirroring is by far the safest, most reliable way to maintain current backups of your important data. And QuickSCSI uses a fast-burst, disk mirroring technique which is so fast and easy, you may never do a traditional backup again. It's ideal for network administrators, desktop publishers, computer artists or anyone who hates to make backups.

Powerful drives work well with QuickSCSI

Three PLI drives which work particularly well with QuickSCSI are the Wren Runner II and Elite drives. These high-capacity, super-performance Seagate drives are ideal for your disk-intensive applications.





Performance will vary depending on sustained transfer rate of the drive connected to QuickSCSI. *The Quadra 900 has faster SCSI performance than other Macs and similar performance to QuickSCSI but does not offer mirroring. All company names and product names are the property of their respective holders.

Seagate

The Most Trusted Name in Storage Solutions.

Peripheral Land Incorporated
47421 Bayside Parkway • Fremont, California 94538
510-657-2211 or 800-288-8754

CIRCLE 181 ON READER SERVICE CARD.

PLI

Table 1: Features of High-Resolution PostScript Laser Printers, continued

				
	LaserMaster LaserMAX 800 ★★★	**LaserMaster LaserMAX 1000** ★★★	**Printware 720 IQ Laser Imager** ★★½	**QMS-PS 815 MR** ★★★½
List price	$4,995	$6,995	$13,990	$5,495
Street price	$4,995	$6,995	$13,990	$3,895
Pros	Decent image quality.	Good halftone quality.	Excellent image quality. 85-lpi halftone screen.	Good image quality.
Cons	NuBus interface. Ties up host Mac. Slow.	NuBus interface. Ties up host Mac. Slow.	PostScript incompatibilities. Slow.	
Specifications				
Laser-engine model	Canon SX	Canon SX	Printware 720 IQ	Canon SX
Engine speed	8 ppm	8 ppm	8 ppm	8 ppm
Engine life (pages)	750,000	750,000	1.2 million	750,000
Monthly duty cycle (pages)	12,500	12,500	20,000	none
Microprocessor, clock speed	proprietary RISC	proprietary RISC	68020, 25 MHz	68020, 20 MHz
PostScript version or clone	LaserMaster ETI	LaserMaster ETI	Printstyle 2.2	Level 1, version 52.4
Resolution	800 x 300 dpi	1,000 x 400 dpi	1,200 x 600 dpi	300 dpi, 600 dpi
Memory (standard, maximum)	6 MB, 6 MB	9 MB, 9 MB	8 MB, 16 MB	6 MB, 8 MB
No. of resident fonts	135	135	35	45
Interfaces	NuBus	NuBus	AppleTalk, serial, parallel	AppleTalk, serial, parallel†
Printer emulations	none	none	ICL	PCL; HPGL, $295†
Paper handling				
Paper weight	24 lb	24 lb	16 – 24 lb	16 – 21 lb
No. of trays, page capacity	1, 250	1, 250	1, 250	1, 200
Paper sizes	letter, legal	letter, legal	statement, letter, legal, A4	letter, legal, A4
Other options	NA	NA	spot-color printing	NA
Miscellaneous				
Toner (price, copies)	$195, 3,000	$195, 3,000	$56.25, 5,000	$130, 4,000
Dimensions (L x W x H, in.)*	19 x 18 x 8	19 x 18 x 8	19.5 x 18.5 x 12	19 x 18 x 9
Weight	38 lb	38 lb	85 lb	44 lb
Warranty	1 year	1 year	1 year parts, 90 days labor	1 year
Service contract (on-/off-site)	through dealer	through dealer	through dealer	$649/$390
Company	LaserMaster Corp. 7156 Shady Oak Rd. Eden Prairie, MN 55344 (800) 950-6363 (612) 944-9151	LaserMaster Corp. 7156 Shady Oak Rd. Eden Prairie, MN 55344 (800) 243-0110 (612) 944-9151	Printware 1385 Mendota Heights Rd. St. Paul, MN 55120 (800) 456-1616 (612) 456-1400	QMS, Inc. One Magnum Pass Mobile, AL 36618 (800) 631-2692 (205) 633-4300

*Without paper tray.

†Auto-select ports and emulations.



If there were a printer that could give you this kind of color, would you still make your presentations in black and white?

Do your presentations go in one eye and out the other? The Colormate™ PS 40 can easily and affordably give them the impact they deserve, enhancing your work with truly amazing color.

The Colormate PS 40 integrates readily with any network, PC or Mac. And it's compatible with most popular presentation software. Of course, Adobe® PostScript® is standard, so you can scale, rotate and shade the 17 resident fonts. 300 DPI graphics means that output is sharp and clear, whether paper or transparencies. And with its small footprint, the Colormate PS 40 won't fill up your desk.

After all, the world isn't black and white, why should your presentations be?



© 1991 NEC Technologies, Inc. Colormate is a trademark of NEC Corporation.
Adobe and PostScript are registered trademarks of Adobe Systems, Inc.

CIRCLE 141 ON READER SERVICE CARD.

C&C Computers and Communications

Call 1-800-NEC-INFO for your Color Presentations Guide.

NEC

Table 1: Features, continued

	 Varityper VT600W $$$$	 Xante AccelaWriter $$$
List price	$14,995	$1,695
Street price	$14,995	$1,695
Pros	Tops in image quality. Fast for 600-dpi printer.	2-year warranty. Fast processor.
Cons	Big and bulky. Expensive. Need service contract.	
Specifications		
Laser-engine model	Panasonic LD	NA
Engine speed	10 ppm	NA
Engine life (pages)	600,000	NA
Monthly duty cycle (pages)	12,000	NA
Microprocessor, clock speed	68020, 16 MHz	Am29000, 16 MHz
PostScript version or clone	Level 1, version 48.10	PhoenixPage, version 2.3
Resolution	600 dpi	600 dpi
Memory (standard, maximum)	12 MB, 12 MB	6 MB, 16 MB
No. of resident fonts	35	35
Interfaces	LocalTalk, RS-422, RS-232	NA
Printer emulations	none	PCL4
Paper handling		
Paper weight	16 – 24 lb	NA
No. of trays, page capacity	1, 200	NA
Paper sizes	letter, legal, ledger, A4, B4	NA
Other options	AutoToner Replenisher, $995/12,000	NA
Miscellaneous		
Toner (price, copies)	$18, 2,500	NA
Dimensions (L x W x H, in.)*	21 x 23 x 18.5	NA
Weight	176 lb	NA
Warranty	90 days	2 years
Service contract (on-/off-site)	$1,995/NA	NA
Company	Varityper 11 Mt. Pleasant Ave. East Hanover, NJ 07936 (800) 631-8134 (201) 887-8000	Xante Corp. 2559 Emogene St. Mobile, AL 36606 (800) 926-8839 (205) 990-8189

*Without paper tray.

Table 1 Criteria

List price — The manufacturer's suggested retail price.

Street price — An average price charged by dealers in the United States in October 1991 or the price charged by the vendors that sell direct.

Laser-engine model — The make and name of the printer engine.

Engine speed — The rated speed of the engine, in ppm (pages per minute).

Engine life (pages) — The number of pages the printer's engine can print in its lifetime.

Monthly duty cycle (pages) — The manufacturer's recommended maximum number of pages per month.

Microprocessor, clock speed — The processor that powers the printer and the processor's clock speed, in megahertz.

PostScript version or clone — The version of Adobe's PostScript or the PostScript clone used in the printer's RIP (raster-image processor).

Resolution — The resolution of the printer engine, in dots per inch (dpi).

Memory (standard, maximum) — The amount of on-board memory that ships with the printer and the maximum amount of memory the printer can accommodate.

No. of resident fonts — The number of outline fonts in ROM that are shipped with the printer.

Interfaces — The types of connections that can be made between the printer and the CPU.

Printer emulations — Additional page-description languages that the printer supports.

Paper weight — The maximum stock weight the printer can handle.

No. of trays, page capacity — The number of paper trays and the number of sheets of paper each can hold.

Paper sizes — The paper sizes the printer can handle.

Other options — Any other feature or option and its price.

Toner (price, copies) — The cost and life of replacement toner cartridges.

Dimensions (L x W x H, in.) — The size of the printer without the paper tray installed.

Service contract (on-/off-site) — The price and type of service contract available with the printer. An on-site service contract is a must with the Varityper VT600W.

It doesn't take a rocket scientist to figure it out. But one did.



Quite a few scientific types focused on the heavens above have found that NewGen™ high-resolution, PostScript®-compatible printers offer advances found nowhere else on earth.

Like Image Enhancement Technology (IET)™, for character quality that's out of this world. Plus Automatic Recognition Technology (ART)™, to select the right interfaces and emulations for you. And Program Updating with the latest in controller technology to make your NewGen printer virtually obsolescence-free.

Resolution close up,
13 point Courier enlarged 500%.



300 dpi
Turbo PS/300p

Turbo PS/400p
with IET

Yet, for all their innovation, you'll find they're offered at very down-to-earth prices.

Take our TurboPS Pro Series, delivering incredibly crisp, professional documents and superb performance at up to 800x400 dpi for single and work group users alike.

We also offer the compact and very affordable TurboPS Personal Series, for 300 or 400 dpi resolution at 4 pages per minute.

Then there's the new T Series, with exceptional 1200x600 dpi in 11"x17" format for truly outstanding graphics capability.

You can add a second paper tray, IC memory cards, SCSI interface and other options as you like.

And with NewGen, you can count on solid customer and technical support as well.

All of which makes NewGen a leader in the printer technology race.

To learn more, or for your local NewGen Dealer, call today. We'll be happy to help you decide which of our machines is just right for your mission.



See us at MacWorld, Booth #443

© 1991, NewGen Systems Corporation. NewGen, NewGen Systems Corporation, NewGen logo, Image Enhancement Technology (IET) and Auto Recognition Technology (ART) are trademarks of NewGen Systems Corporation. PostScript is a registered trademark of Adobe Systems, Inc.

newgen *The Hi-Res People*™

NewGen Systems Corporation
17580 Newhope Street, Fountain Valley, CA 92708
Telephone 714/436-5100 FAX 714/641-2800
Toll Free 1-800-756-0556
Dealer Inquires Welcome

END USERS CIRCLE 23 ON READER SERVICE CARD.

DEALERS CIRCLE 24 ON READER SERVICE CARD.

When Lightning Strikes: Power Protection

Fire, earthquake, flood, lightning — MacUser Labs looks at two technologies that protect your Mac from disaster.



BY ANDREW EISNER
AND THE MACUSER LABS STAFF

Like most people, you're probably not too thrilled when an insurance premium comes due. Sure, you know it's smart to have a policy, but it's hard to get excited about dishing out a pile of money for something you may never use. The same attitude often applies to uninterruptible power supplies and surge suppressors: You know you should protect yourself, but you put it off until it's too late.

From single users to network administrators, we all have a considerable amount of time invested in our data and money invested in our hardware — investments worth protecting. This month MacUser Labs looks at two types of devices that are designed to protect your data and equipment from the ravages of errant electricity.

PHOTOGRAPHY: PIERRE-YVES GOAVEC


SOLA
Power Backer 360
Sinewave UPS
Alarm Disable
Output Power
MasterPiece
REMOTE
EXPANSION

How Safe Are You?

Maybe you've heard horror stories of blackouts trashing hard drives and destroying data and high-voltage surges blowing up computers. If your response was to buy a power strip from the local hardware store, you might be protected — and you might not. If you can't even remember the last time you saw lightning, do you really need heavy-duty protection? Certainly your local climate plays a big part in the amount of power protection you need (see the "Regional Risks" sidebar). Once you've decided that your equipment and data need extra protection, the next step is to decide what type of device will work best in your situation.

There are two types of devices on the market that can help protect your computer and your data: A *surge suppressor* prevents high-voltage surges from destroying your hardware, and a *UPS*, or uninterruptible power supply, protects your data by providing your equipment with power long enough for you to shut it down properly. Some UPSs, with the help of special software such as PowerChute, can even shut down a Macintosh server automatically (see the "On the Horizon" sidebar).



Maybe you've heard horror stories of blackouts trashing hard drives and destroying data and high-voltage surges blowing up computers.

Fear of Frying

A surge suppressor, the simpler of the two types of devices and often built in to a power strip, contains *MOVs* (metal-oxide varistors), which absorb high-voltage surges that might harm your hardware. Surge suppressors can cost anywhere from a few dollars to around $50. The cheaper ones act like fuses, blowing up to protect your equipment. The more expensive suppressors are designed to survive and to absorb huge surges while continuing to send safe power to your computer. A surge suppressor offers inexpensive and prudent insurance for your Mac and its peripherals. In fact, you already own several — your Mac and most of your peripherals already contain internal surge suppressors.

Does an external surge suppressor give added protection? Maybe. If a hard-to-reach internal surge suppressor inside your Mac or hard drive blows up when it's hit by a surge of

Figure 1: The Mac's Power Supply

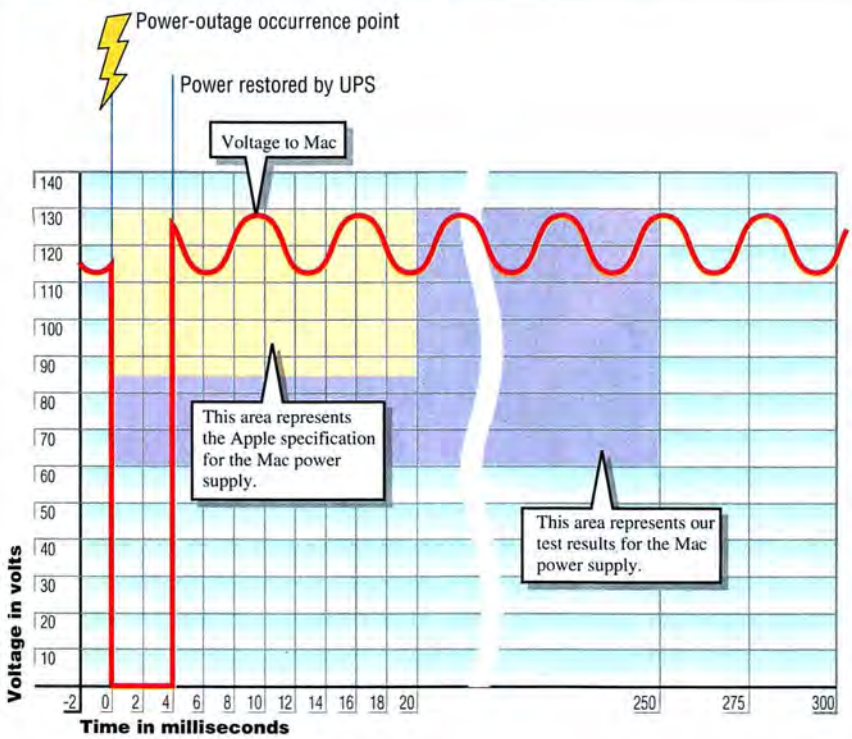
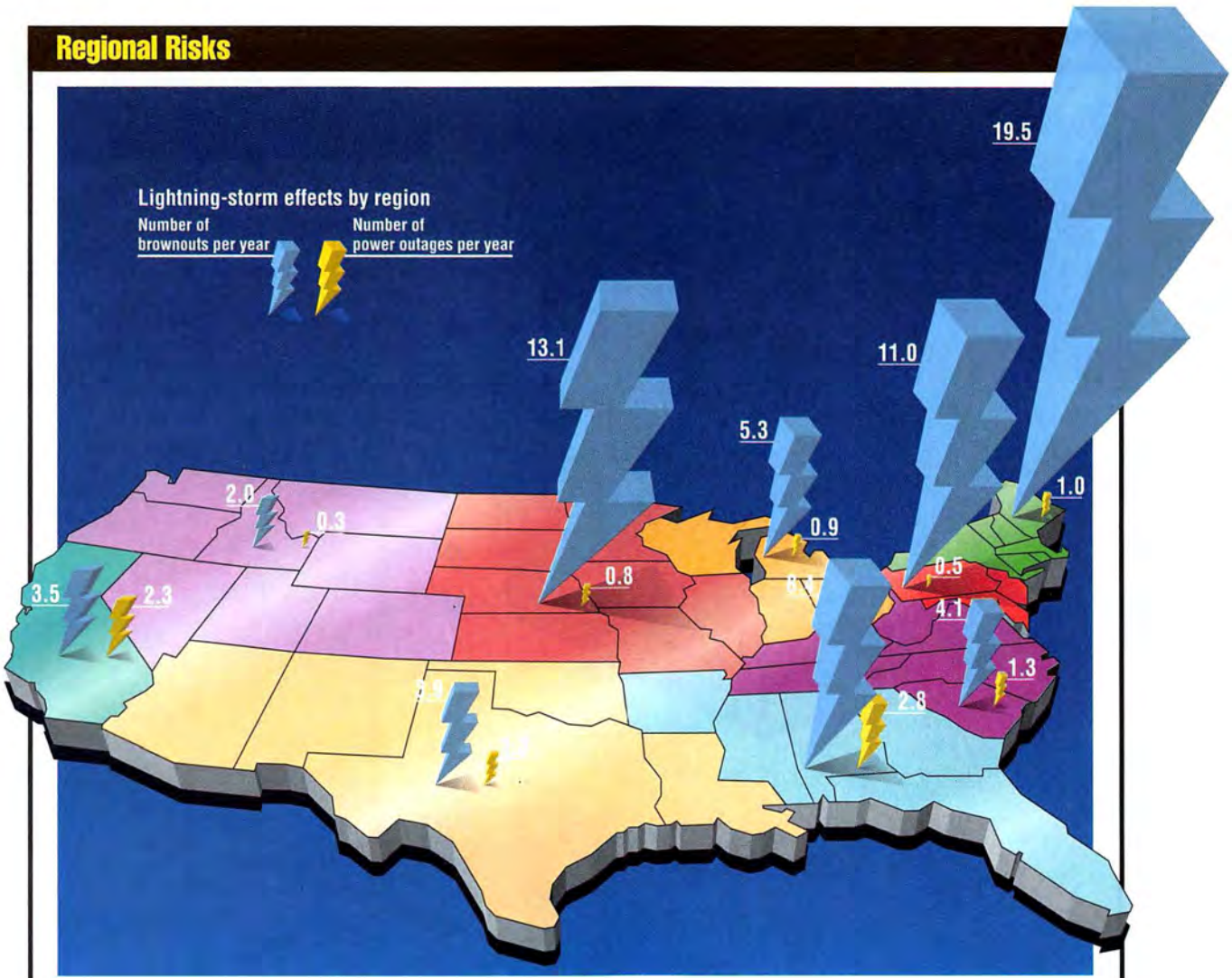


Figure 1: The Mac's power supply turned out to be far more forgiving than we expected it to be. Although Apple says that the Mac's power supply can maintain data integrity only for power interruptions that last no longer than 20 milliseconds, our tests showed that it can safeguard data for interruptions more than ten times as long. The standby-UPS units we tested were all able to switch over to battery power in less than 4 milliseconds, leaving a hefty safety margin. Apple also says that the Mac's power supply needs at least 85 volts to operate; our tests showed that it could operate on as little as 60 volts.

Regional Risks



Whether you need a surge suppressor or a UPS is not just a question of what type of equipment and how much data you have to protect — where you live is also a big part of the equation.

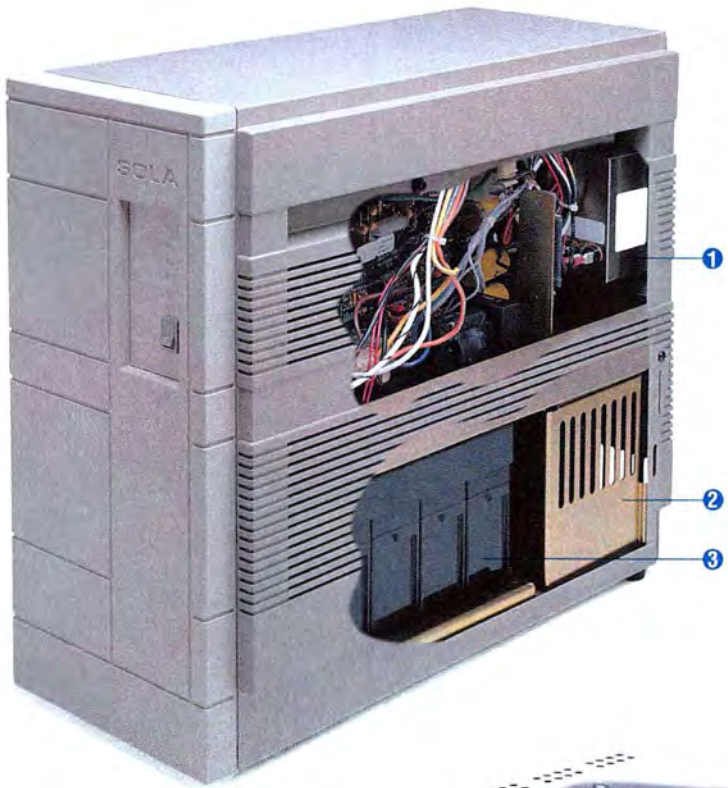
The North American Electric Reliability Council (NAERC) points out that, in general, the farther you live from an urban center, the less reliable your power. Urban centers usually have backup systems for restoring lost power; rural areas seldom do. But it's lightning that's the real culprit in power outages. The National Weather Service (NWS) claims that lightning strikes and other violent weather conditions are the most common source of power failure in the U.S.

Florida's west coast leads the way, with the nation's highest average number of thunderstorm days per year — about 100. If you live on the Pacific coast, you can expect only about 5 per year. Everywhere else falls somewhere between 10 and 90. Preliminary data from a National Power Laboratory (NPL) study echoes the NWS study, showing that the Southeast suffers more than double the number of outages of the next-closest regions, the mid-Atlantic and Texas/Oklahoma. The NPL defines an outage as zero voltage for 4 milliseconds or more.

Brownouts — when power doesn't completely cease but voltage drops below acceptable levels instead — are also a major concern, because they can force your equipment to shut down unexpectedly or require your UPS to use its battery too frequently. The NPL defines a brownout, or sag, as any fluctuation below 104 volts lasting from 2.1 milliseconds to 2.5 seconds.

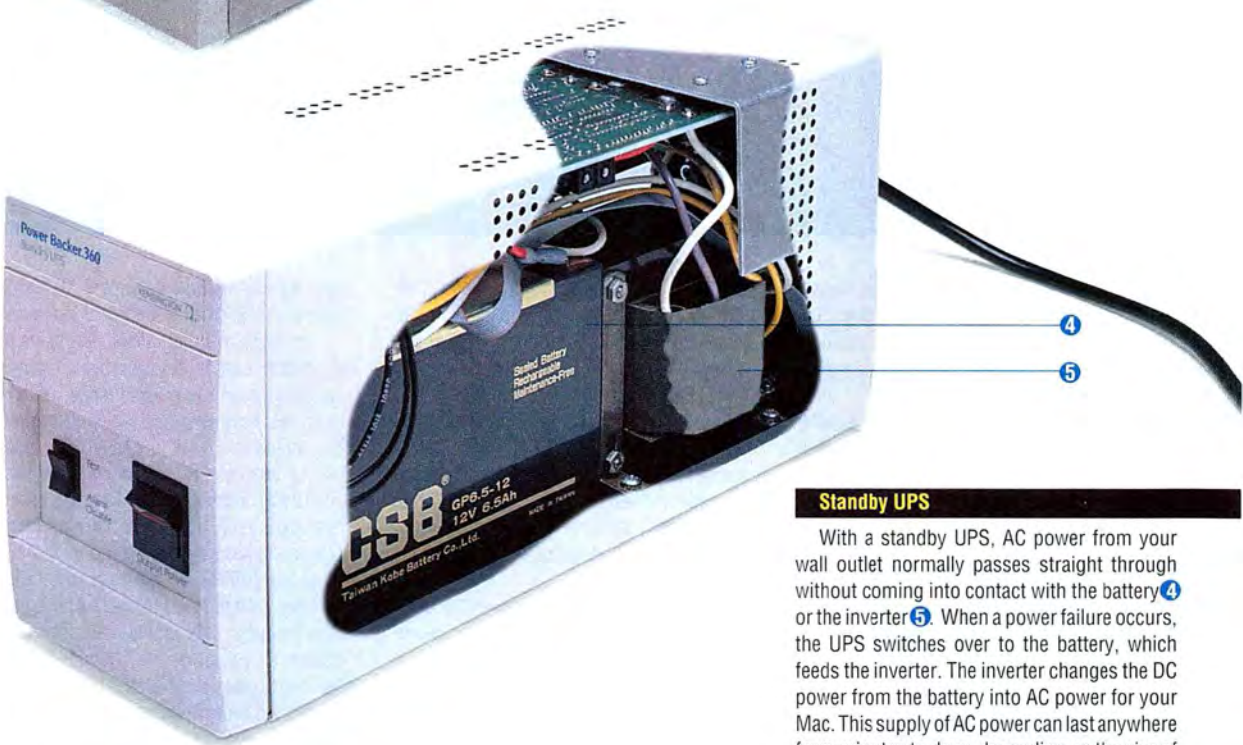
Proximity to urban areas also plays an important part in the number of power fluctuations you may experience. Historically, the Northeast has suffered frequent brownouts as a result of heavy loads being placed on the power grid by appliances such as air conditioners and heaters during peak periods. A lack of suitable generating equipment has added to the problem. Word from the NAERC is that new generating facilities have reduced the hazard, although data from the NPL study still shows the region to be prone to brownouts. The Northeast leads the country, with an average of 19.5 brownouts per month, followed closely by the Midwest (13.1) and the Pennsylvania/Maryland region (11.0).

How It Works: Surge Suppressors and UPSs



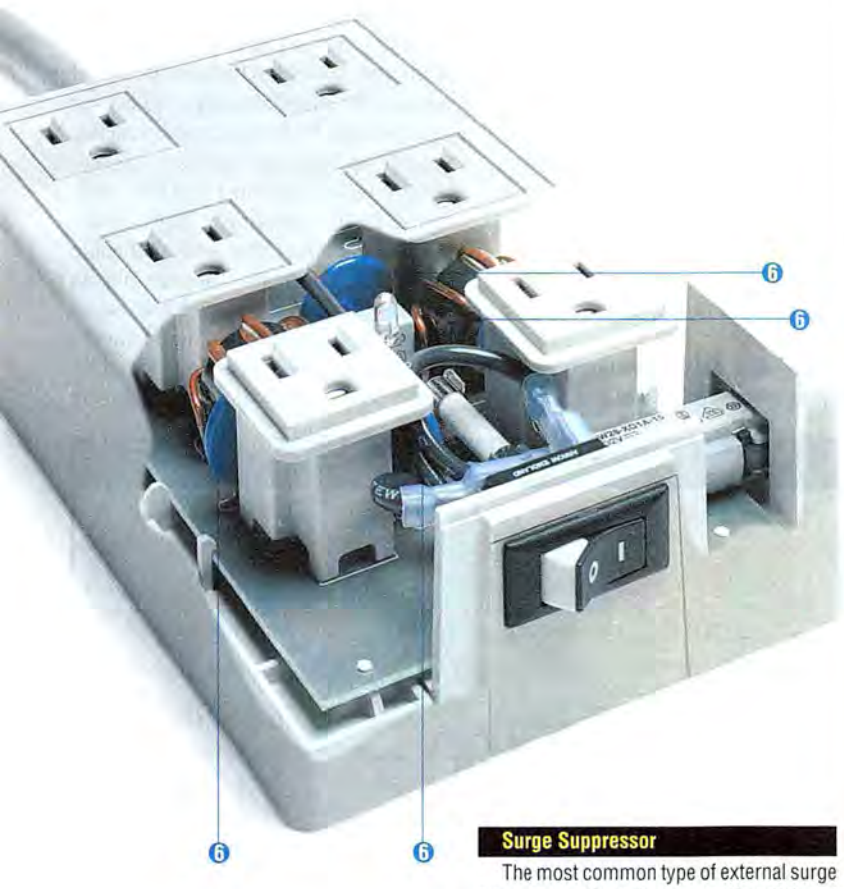
On-Line UPS

An on-line UPS constantly routes power from a wall outlet through a DC power supply ❶ — which also functions as a battery charger — and an inverter ❷ before sending it to your Mac. When power from the wall outlet is interrupted, the power to the inverter is drawn from the battery ❸ instead of from the DC power supply, with no measurable switch-over time. The on-line UPS constantly monitors power for surges and sags, augmenting or reducing it as necessary.



Standby UPS

With a standby UPS, AC power from your wall outlet normally passes straight through without coming into contact with the battery ❹ or the inverter ❺. When a power failure occurs, the UPS switches over to the battery, which feeds the inverter. The inverter changes the DC power from the battery into AC power for your Mac. This supply of AC power can last anywhere from minutes to days, depending on the size of



Surge Suppressor

The most common type of external surge suppressor plugs in to a wall outlet and contains one or more AC outlets for your Macintosh and peripherals.

Disk-shaped *MOVs* (metal-oxide varistors) 6 lower their resistance and absorb the power when the voltage increases to harmful levels. Dangerous surges are thereby isolated by the MOVs, which sometimes sacrifice themselves in the process.

the *load* (how much power your equipment draws from the UPS), the capacity of the battery, and the design of the UPS.

A regulating standby UPS also includes a *step-up transformer*, which enables the UPS to provide normal output voltage, given low input voltages. By doing so, it mimics an on-line unit in its ability to flatten out power fluctuations without resorting to battery power.

renegade voltage, you'll wish that you had lost an inexpensive external suppressor instead. However, most surges that are either powerful or fast enough to destroy your external surge suppressor are severe enough to continue down the wire and destroy your Mac as well. Also, MOVs are designed to respond only to surges exceeding 400 volts, so they're ineffective against less powerful *overvoltages* — sustained voltage increases greater than the normal 120 volts but less than the 400 volts required to trigger the MOVs. Fortunately, the Mac's filtering circuitry can protect your machine from most overvoltages.

Many manufacturers also point to *electronic-noise filtration* as an important feature of surge suppressors. Electronic noise, caused by electrical equipment (especially motor-equipped devices such as drills and blenders) plugged in to the same circuit as your Mac, can cause annoying patterns on-screen and even data errors in extreme cases. Again, the Mac and most peripherals already contain filtration circuitry. But for those who live in an area that's prone to lightning strikes, a surge suppressor with the ability to protect your equipment from surges passing through telephone or network cabling is very valuable. These lines can act like giant antennae, attracting and conducting lightning right to your machine. Good suppressors offer connections for telephone as well as network lines, so that your Mac can be completely isolated from potential hazards.

Keep the Power On

A UPS, a much more complex protection device than a surge suppressor, is designed not only to protect your equipment from surges but also, more importantly, to protect your data by keeping your Mac running when the power is interrupted. Accordingly, UPSs are much more expensive than surge suppressors are, typically costing between $500 and $800.

A UPS generally contains surge-suppression and filtration circuitry,

along with a battery and an *inverter,* which converts the battery's power to 120 volts AC, like that of an outlet. The UPS does its job by swiftly shifting power to an internal battery when it detects a power outage. The battery power keeps your equipment running long enough for you to shut it down properly and thus save your data.

Two types of UPSs — *standby* and *on-line* — are available. A standby UPS has two separate circuits joined by a switch. An AC circuit passes electricity from a wall outlet to your machine until the UPS detects a power failure, at which time it switches over to battery power. The battery circuit —dormant until a power outage occurs — consists of a DC battery and an inverter.

An on-line UPS' ability to flatten out shifting voltages makes it ideal for sites that suffer chronic power fluctuations.

An on-line UPS constantly routes AC power from the wall outlet through a DC power supply — which also acts as a battery charger — and the inverter before passing the power on to your Mac. When the UPS detects a power failure or a brownout (a temporary drop in voltage), the inverter draws from the battery whatever power it needs. This eliminates any switch-over time, a period when no power reaches your Mac while the UPS switches to battery power. An on-line UPS' ability to flatten out shifting voltages makes it ideal for sites that suffer chronic power fluctuations — for example, an old building with a welding shop downstairs that sends frequent surges through the outlets or an insufficiently powered office in which turning on the

Figure 2: Picking the Right UPS

Hardware	Amps	Volts	Volt-Amps
Mac Classic with 2 MB of RAM, 40-MB hard drive	.49		59
Mac LC with 2 MB of RAM, 40-MB hard drive	.25		30
Mac SE/30 with 4 MB of RAM, 40-MB hard drive	.66		79
Mac IIsi with 5 MB of RAM, 80-MB hard drive	1.24		148
Mac IIci with 5 MB of RAM, 80-MB hard drive	.60		72
Mac IIfx with 20 MB of RAM, no hard drive	1.39	x 120 =	167
Radius Pivot (monochrome)	1.00		120
Apple 12" RGB display	.53		63
Apple 13" RGB display	1.01		121
Rodime Cobra 100e hard drive	.32		39
FWB Hammer 300 hard drive	.35		42
MacTEL HD Index 1010 MB hard drive	.48		58
NECN9631 9,600-bps modem	.10		12



Example

Apple 13" RGB display	121 VA
Mac IIsi with 5 MB of RAM, 80-MB hard drive	148 VA
NECN9631 9,600-bps modem	12 VA
Total required	281 VA

Figure 2: It's important to buy a UPS whose rating is appropriate for your needs. To match your Mac to a UPS, add up the power requirements, in VAs (volt-amps), of all the equipment that will be drawing power from the UPS. (Remember, some equipment, such as laser printers, uses a lot of power but doesn't really need to be connected to your UPS.) To determine the VA requirements of your equipment, simply add up the amperes required for each piece of equipment (look on the back of your unit for this number) and multiply by 120 to calculate the VAs (see the example). If your equipment is rated in watts, add up the watts required and divide by .7 to get the VAs. This figure shows some typical VA requirements.

MASS Media



DataPak™ Removables
More Storage, More Choices

Macintosh storage solutions from MASS Microsystems™. That's what MASS Media means. And our DataPak removables give you more storage and more choices than ever before.

Selection Choose a DataPak model to meet your individual needs. With footprints to match your Macintosh, DataPak 45 and 88 drives provide hard disk performance. Or choose our DataPak MO optical drive with 512 megabytes per cartridge. Whether you're archiving large files or need network backup, DataPak MO gives you the most cost-effective optical storage available.

Now available for Quadra 900: DataPak 45i and 88i Internal Drives

Infinite Storage With DataPaks you never run out of storage. Each removable cartridge packs up to 45 or 88 megabytes of hard disk storage, or 512 megabytes of rewritable optical storage. Need more? Just buy another cartridge.

Security & Backup The compact removable cartridges are ideal for securing your data. Take them with you or lock them up. And DataPak doubles as the ideal backup system.

CIRCLE 158 ON READER SERVICE CARD.

The MASS Microsystems Edge

With more industry awards for removable storage, and as the first Macintosh-only public corporation, MASS Microsystems is one company you can count on. With dealers and distributors worldwide, up to 2-year warranties, next-day repair, and toll-free technical support, we're there when you need us. For a free demo disk, or the name of a dealer near you, call toll-free

800-522-7979.

MASS Microsystems DataCart Lifetime Warranty Cartridge

FREE DEMO

MASS microsystems
The first name in storage

810 W. Maude Avenue Sunnyvale, California, 94086
408-522-1200 Fax: 408-733-5499

Macintosh is a registered trademark of Apple Computer, Inc.
DataPak and MASS Microsystems are trademarks of Mass Microsystems, Inc.

DP-MUO1

SyQuest TECHNOLOGY

See us at MacWorld, Booth # 1139, Moscone

Table 1 Criteria

VA rating — The unit of output measurement is the volt-amp, a measurement similar to the watt that gauges the total load you can plug in to a UPS.
Type of UPS — Is the UPS a standby or an on-line unit?
Output wave — Does the unit provide power output in the form of a sine, step-approximation, or square wave?
No. of outlets — The number of outlets.
Transfer time — The amount of time it takes a standby UPS to switch to battery power when it detects an outage, in milliseconds.

coffeepot dims the lights. Because on-line UPSs operate at all times, the chance that they won't kick in when needed (a possibility with standby units, if the battery has failed to charge) is negligible.

If you're the worrying type, an on-line UPS may be the right choice. But don't expect that assurance to come cheap. Most on-line UPS units are substantially more expensive than standby units. For those on a budget who are seeking the regulating ability of an on-line UPS, there is a type of standby unit, called a *regulating standby*, that can regulate minor power fluctuations by using a massive transformer to smooth out irregularities.

Noise Annoys

Because each type of UPS contains a transformer, a UPS gives off an annoying hum. A standby unit is the quieter of the two, because the transformer is engaged only when power has failed. An on-line UPS' transformer is constantly engaged, so the UPS hums constantly. A fan, which you may find on larger units, can also contribute to the noise. If you plan to have a UPS at your desk, think twice before getting an on-line UPS; if you're looking for something to put in your server closet, noise won't be as much of an issue. It's also theoretically possible that because an on-line UPS' transformer is in constant use, the UPS will be less reliable, because of constant thermal stress, than a standby UPS will be.

As noise affects users, so too does the wave pattern of power affect electrical or electronic equipment. Wall outlets provide power in the form of a

On the Horizon

If you operate a Mac network and want a UPS that can safely shut it down unattended, you may be in for a little shock. UPS units that have software for shutting down servers and issuing warnings to clients are still almost solely limited to the DOS world. Currently, only Deltec and American Power Conversion offer software, called PowerChute, for the Macintosh that's capable of safely shutting down a server — and it can shut down only the server, not your client Macs.

However, other sophisticated features available for DOS computers are slowly beginning to appear in the Macintosh market. American Power Conversion, for example, has a program called PowerDoctor that accesses built-in diagnostics in its Smart-UPS line, letting you turn attached equipment on or off remotely. You can also run diagnostics to see if your standby UPS' batteries need to be replaced, a feature that adds value to these inexpensive units. The diagnostics are also built in to the American Power Conversion 370ci, but — as yet — there's no way of accessing them from your Mac. American Power Conversion, 132 Fairgrounds Road, West Kingston, RI 02892; (800) 541-8896 or (401) 789-5735.

Emerson is currently working on a UPS for Macs that will notify a system extension developed by Intellisoft (of Novato, California) of a power failure. This extension, located on client Macs, will then save the entire contents of RAM onto the hard disk and shut the machine down. When power returns, the contents of RAM will be restored. This software has been available for some time under the name Bookmark. We tried Bookmark and found that although it took several seconds to save an image on a Mac with 8 megabytes of RAM, it seamlessly restored us to where we'd left off. Emerson Computer Power, 15041 Bake Parkway, Suite L, Irvine, CA 92718; (800) 222-5877 or (714) 380-1005.

Table 1: Directory of UPS Units

● = yes ○ = no Company	Product
American Power Conversion 132 Fairgrounds Rd. West Kingston, RI 02892 (800) 541-8896 (401) 789-5735	110SE UPS 370ci UPS Smart-UPS 400 Smart-UPS 900 Smart-UPS 2000 Back-UPS 250B Back-UPS 400B Back-UPS 450B Back-UPS 600
Best Power Technology P.O. Box 280 Necedah, WI 54646 (800) 356-5794 (608) 565-7200	Fortress Model LI360 Fortress Model LI460 Fortress Model LI660 Fortress Model LI950 Fortress Model LI1300 Fortress Model LI2000 FERRUPS ME500VA
Deltec 2727 Kurtz St. San Diego, CA 92110 (800) 854-2658 (619) 291-4211	Watchman II Model W525 PowerRite Plus PR 250 PowerRite Plus PR 400 PowerRite Pro PR 400 PowerRite Plus PR 600
Emerson Computer Power 15041 Bake Pkwy., Ste. L Irvine, CA 92718 (800) 222-5877 (714) 380-1005	AccuPower Model 10 AccuPower Model 20 AccuPower Model 30 UPS400
Exide Electronics 8521 Six Forks Rd. Raleigh, NC 27615 (800) 544-0978 (919) 870-3200	PowerWare Personal 350 PowerWare Personal 500
Insight 1912 W. 4th St. Tempe, AZ 85281 (800) 776-7600 (602) 967-4999	In-Line UPS
Kensington Microware 2855 Campus Dr. San Mateo, CA 94403 (800) 535-4242 (415) 572-2700	Power Backer 360 Power Backer 450 Power Backer 520 Power Backer 800 Power Backer 1200

*On-line UPS units have no measurable transfer time.

†This hybrid unit has traits of both standby- and on-line-UPS technology.

§The three additional outlets are not provided with power when the standby battery is being used.

◊The two additional outlets are not provided with power when the standby battery is being used.

List price	VA rating	Type of UPS		Output wave			No. of outlets	Transfer time*	Cost per VA
		Standby	On-line	Sine	Step	Square			
$299	110 VA	●	○	●	○	○	2	4 ms	$2.72
$499	370 VA	●	○	●	○	○	4	4 ms	$1.35
$499	400 VA	●	○	●	○	○	4	4 ms	$1.25
$999	900 VA	●	○	●	○	○	6	4 ms	$1.11
$1,999	2,000 VA	●	○	●	○	○	5	4 ms	$1.00
$169	250 VA	●	○	○	●	○	2	4 ms	$0.68
$249	400 VA	●	○	○	●	○	4	4 ms	$0.62
$329	450 VA	●	○	○	●	○	4	3 ms	$0.73
$449	600 VA	●	○	○	●	○	4	4 ms	$0.75
$599	360 VA	○	●	●	○	○	4	0 ms	$1.66
$699	460 VA	○	●	●	○	○	4	0 ms	$1.52
$799	660 VA	○	●	●	○	○	4	0 ms	$1.21
$1,049	950 VA	○	●	●	○	○	4	0 ms	$1.10
$1,349	1,300 VA	○	●	●	○	○	6	0 ms	$1.04
$1,999	2,000 VA	○	●	●	○	○	6	0 ms	$1.00
$960	500 VA	○	●†	●	○	○	4	0 ms	$1.92
$825	525 VA	○	●	○	●	○	4§	0 ms	$1.57
$245	250 VA	●	○	○	●	○	4	1 ms	$0.98
$368	400 VA	●	○	○	●	○	4	4 ms	$0.92
$525	400 VA	●	○	●	○	○	4	2 ms	$1.31
$524	600 VA	●	○	○	●	○	4	4 ms	$0.87
$189	150 VA	●	○	○	●	○	3	4 ms	$1.26
$299	300 VA	●	○	○	●	○	3	4 ms	$1.00
$449	500 VA	●	○	○	●	○	4	4 ms	$0.90
$449	500 VA	●	○	○	●	○	4	4 ms	$0.90
$449	350 VA	○	●	●	○	○	3	0 ms	$1.28
$649	500 VA	○	●	●	○	○	3	0 ms	$1.30
$499	750 VA	○	●†	●	○	○	3◊	0 ms	$0.67
$299	360 VA	●	○	○	●	○	4	3 ms	$0.83
$399	450 VA	●	○	○	●	○	4	3 ms	$0.89
$499	520 VA	●	○	○	●	○	4	3 ms	$0.96
$899	800 VA	●	○	●	○	○	6	4 ms	$1.12
$1,199	1,200 VA	●	○	●	○	○	6	4 ms	$1.00

curving *sine wave*, produced when power rises and lowers smoothly in alternating directions. Some UPS units, however, provide power in *square waves* or *step-approximation waves*, which are easier to produce but are not as smooth and curving as sine waves are. A square wave provides alternating current that's either fully on or fully off — no smooth transitions. A step-approximation wave takes the power up and down in discrete steps — again, no smooth transitions but also no abrupt shift between fully on and fully off.

Your Mac and most Mac peripherals contain switching power supplies that aren't too fussy about the shape of the power they receive and that may find square or step-approximation waves quite agreeable; in fact, some of these power supplies may actually run cooler and more efficiently with square- or step-approximation-wave power than with sine-wave power. However, equipment with transformers, fans, or motors isn't so happy with square and step-approximation waves and might overheat or even fail. If you have any doubts about the equipment you'll be powering, stick with a unit that can produce sine-wave output.

The Muscular Mac

Some manufacturers of on-line UPSs claim that their units are superior to standby UPSs, because of the inevitable tiny delay as a standby unit switches over to battery power. To determine how critical this switchover time really is, we examined a range of Mac power supplies to find out how temperamental they are when it comes to delays, surges, and sags.

We assembled several Mac configurations, from a sophisticated IIfx-based graphics system to an unadorned Mac Classic, and subjected them all to blackouts and brownouts to see what it takes to starve a Mac's power supply (see Figure 1). An *auto-transformer* allowed us to create brownout conditions by dialing any voltage from 0 to 132, and a *line-voltage-variation simulator* allowed us to precisely

A Mac can survive on as little as 60 volts and can operate through power outages lasting as long as 250 milliseconds.

control the duration of a power outage in milliseconds.

Apple's technical specifications claim that its power supplies need at least 85 volts and can only operate through outages lasting no longer than 20 milliseconds. Our tests, however, showed that a Mac can survive on as little as 60 volts and can operate through power outages lasting as long as 250 milliseconds — an enormously long time in the microchip world. Even a IIfx with all six NuBus slots filled (NuBus cards draw extra power from the Mac's power supply) coasted through 150-millisecond interruptions. Most manufacturers of standby UPSs claim that their devices can switch from wall-socket electricity to battery power in 5 milliseconds or less, a claim our testing confirmed. This speed may be necessary to keep more-finicky computers running, but Macs can afford to wait around for even the most sluggish standby UPS to provide backup power.

How long that power lasts can vary greatly, however, depending both on the UPS and on the load plugged in to it (see Figure 2). When we surveyed the UPS market, we discovered dozens of products with a broad range of capacities (see Table 1). We chose half a dozen representative models for testing. First, we looked at two standby UPS units with sine-wave power output: the American Power Conversion 110SE UPS and 370ci UPS. We also examined two step-approximation-wave standby units that are targeted specifically at the Mac market: the Kensington Microware Power Backer 360 and 520. Finally, we looked at two muscular on-line units with sine-wave output: the Sola Sidekick Micro UPS 520 and the Network UPS.

All these units were able to keep our Macintosh IIfx server powered for 20 to 30 minutes — more than enough time to shut it down properly and protect valuable data. And all were equipped with substantial suppression and filtration circuitry. But don't let a UPS lull you into a false sense of security: It's no substitute for a regular backup program (see "Overnight Success: Network Backup," August '91, page 112).

Strategies for Safety

Internal surge suppression in the Mac and most peripherals is excellent, making external suppressors almost

The Bottom Line

Even though the Mac is pretty easy-going when it comes to surges and blackouts, if you have a server and don't have a UPS, you're playing with fire. A UPS can pay for itself the first time it saves your data. However, if you're a single user, back up regularly, and live in an area with reliable power, you may not need extra protection.

You probably don't need an external surge suppressor for either your Mac or your peripherals — they already have internal suppressors. But if you live in a lightning-prone area, operate a network, or have equipment connected to a phone line, it might be wise to add external surge protection.

If you're looking for UPS protection, a standby unit is the obvious choice for the single user, because it's usually less expensive than is an on-line UPS and has less transformer hum. An on-line UPS unit is the best idea for locations in which noise is not an issue (such as in a server closet) and where power fluctuations are common. If you can't manage the cost of an on-line UPS, we recommend that you get a regulating standby UPS, which can see you through minor power fluctuations without having to resort to battery power.

Table 1: Directory, continued

● = yes ○ = no Company	Product
Panamax 150 Mitchell Blvd. San Rafael, CA 94903 (800) 472-5555 (415) 499-3900	Nonstop 450 Nonstop 520 Nonstop 900 Nonstop 1300
Para Systems 1455 LeMay Carrollton, TX 75007 (800) 238-7272 (214) 446-7363	Minuteman AT300/1 Minuteman AT500/1 Minuteman AT650SL/1 Minuteman AT800SL/1 Minuteman AT1200SL/1 Minuteman AT1600SL/1 Minuteman AT2300SL/1 Minuteman On-line 500/1 Minuteman On-line 1000/1
Sola Electronics 1717 Busse Rd. Elk Grove Village, IL 60007 (708) 439-2800	Network UPS Sidekick Micro UPS 180 Sidekick Micro UPS 360 Sidekick Micro UPS 520 Sidekick Plus (SPS/R)
Square D/Power Protection Systems 9192 Topaz Way San Diego, CA 92123 (800) 634-2003 (619) 279-0111	Topaz CUB 250 Topaz CUB 350 Topaz CUB 550
Tripp Lite 500 N. Orleans Chicago, IL 60610 (312) 329-1777	Unison PS 4.5 UPS BC 205 Standby UPS BC 375 Standby UPS BC 500LAN Standby UPS BC 1000LAN Standby UPS OMNI 450LAN OMNI 750LAN
Viteq 10000 Aerospace Rd. Lanham, MD 20706 (301) 731-0400	VPS-1500 VPS-750

*On-line UPS units have no measurable transfer time.

†This hybrid unit has traits of both standby- and on-line-UPS technology.

List price	VA rating	Type of UPS		Output wave			No. of outlets	Transfer time*	Cost per VA
		Standby	On-line	Sine	Step	Square			
$399	450 VA	●	○	○	●	○	4	2 ms	$0.89
$499	520 VA	●	○	○	●	○	4	2 ms	$0.96
$899	900 VA	●	○	●	○	○	4	2 ms	$1.00
$1,189	1,300 VA	●	○	●	○	○	4	2 ms	$0.91
$339	300 VA	●	○	○	●	○	2	4 ms	$1.13
$469	500 VA	●	○	○	●	○	4	4 ms	$0.94
$629	650 VA	●	○	○	●	○	4	4 ms	$0.97
$879	800 VA	●	○	●	○	○	4	4 ms	$1.10
$1,179	1,200 VA	●	○	●	○	○	4	4 ms	$0.98
$1,449	1,600 VA	●	○	●	○	○	4	4 ms	$0.91
$1,949	2,300 VA	●	○	●	○	○	4	4 ms	$0.85
$1,249	500 VA	○	●	●	○	○	3	4 ms	$2.50
$2,099	1,000 VA	○	●	●	○	○	3	4 ms	$2.10
$1,939	500 VA	○	●	●	○	○	4	0 ms	$3.88
$219	180 VA	●	○	●	○	○	2	0 ms	$1.22
$339	360 VA	●	○	●	○	○	2	0 ms	$0.94
$519	520 VA	●	○	●	○	○	2	0 ms	$1.00
$1,299	500 VA	●	○	●	○	○	4	0 ms	$2.60
$189	250 VA	●	○	○	●	○	1	4 ms	$0.76
$299	350 VA	●	○	○	●	○	1	4 ms	$0.85
$589	550 VA	●	○	○	●	○	2	4 ms	$1.07
$699	450 VA	○	●	●	○	○	4	0 ms	$1.55
$159	205 VA	●	○	○	○	●	2	2 ms	$0.78
$229	375 VA	●	○	○	○	●	4	2 ms	$0.61
$349	500 VA	●	○	○	○	●	4	2 ms	$0.70
$799	1,000 VA	●	○	○	○	●	4	2 ms	$0.80
$499	450 VA	●	○	○	○	●	4	2 ms	$1.11
$749	750 VA	○	●†	○	○	●	4	2 ms	$1.00
$2,895	1,500 VA	○	●	●	○	○	4	0 ms	$1.93
$1,595	750 VA	○	●	●	○	○	3	0 ms	$2.13

unnecessary. But if you operate a network in an area prone to lightning strikes, a surge suppressor that can protect your network from surges traveling through both network cabling and telephone lines may be a good thing.

If you decide to go with a UPS, you can easily minimize data loss by installing either a standby or an on-line unit. Frequent backup is still advisable, but for single users in a lightning-prone region or for those running a network, a UPS is essential. Standby units, because they are inactive most of the time, give off little transformer hum and suffer little thermal stress, which can reduce their reliability. Standby units are also cheaper than on-line ones and, for the Macintosh, are able to switch to battery power with time to spare. Regulating standby units mimic on-line ones in their ability to regulate power fluctuations, at a considerable price savings. In standby units, the absence of any self-diagnostic ability means that there is always a slight risk that the battery may not be fully charged and that it may fail when needed.

Because they are constantly engaged, on-line units give you the assurance that they are always ready in the event of a power failure. They do, however, give off continuous transformer hum and are considerably more expensive than standby units. It's also possible that, because they are constantly engaged, increased thermal stress may reduce their overall life span.

When looking at UPS units, be sure to take into account not only size and cost but also noise and load capacity. Some UPS manufacturers even offer software that shuts down the Mac to which the UPS unit is attached when a power failure occurs (see the "On the Horizon" sidebar) — a real plus for any Mac, such as a file or mail server, that operates unattended.

Andrew Eisner, director of testing for ZD Labs, had to suppress the urge to write this report until supplied with the power to be uninterrupted.

Mac WAREHOUSE

GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.





Hayes Personal Modem 2400 Plus with Smartcom

❼ The Hayes Personal Modem 2400 Plus provides you with everything you need to go on-line. This 2400 baud modem has a built-in call-monitoring speaker and two LEDs, plus both phone and computer cables. Included in the package is the Smartcom terminal software to make using your modem simple and convenient. It fully supports the Mac interface. Also emulates popular terminals, such as TTY and VT52/102, to make mainframe and mini access easy. File transfer protocols include XModem and MacBinary.
Manufacturer: Hayes MOD0060

$149

FoxBASE+/Mac 2.0



Combines the flexibility of the dBase language, the speed of FoxBase+, and the userfriendly Mac interface. Runs all your dBASE III Plus programs on the Mac, without requiring you to change a single line of source code. In NSTL benchmarks, it outperforms other relational database managers, some by as much as 200 times. Version 2.0 has an improved report writer that creates complex columnar and free-form reports - without programming. Procedure language now provides access to up to 16 HyperCard external functions and commands (XFCNs and XCMDs). **Manufactuer: Fox Software DAT0047**

$295



PacerTerm

❼ Combines today's standards–Communication Toolbox and HyperTalk scripting-with a comprehensive collection of file transfer (FTP,Kermit, XMODEM, ZMODEM and others) and connection protocols (TCP/IP, LAT, and others). Keyboard remapping, on-screen SoftKeys, and multiple VT320 terminal windows let PacerTerm users create powerful front-ends to host applications and on-line services. **COM0106 $159.**

PacerForum

❼ Get your workgroup working! An innovative conferencing and bulletin board application that provides easy and efficient distribution of information on any Apple Talk network. With PacerForum's icon-based graphical user interface, you can share, organize and archive text, files, pictures and sounds. 7/30/91 MacWeek calls PacerForum "a very useful tool that will greatly facilitate office communications." **Publisher: Pacer Software NET0167**

$355

Timeslips III 2.0

❼ Timeslips III 2.0 is a complete time keeping and billing package. You gather time data with TS Timer DA. When the time comes to send the bill, TS Report will extract the data and generate invoices and reports in a wide variety of formats. Timeslips can handle the big jobs: 250 users, 250 different activities and over 3,000 clients, with up to 128 projects per client.
Publisher: Timeslips Corporation BUS0043



$195



WristSaver/ WristSaver MousePad

The WristSaver cradles your wrist with a contoured neoprene rubber pad and a nylon covering. It's ergonomically designed to support your wrist at the proper angle to help avoid the pain associated with Carpal Tunnel Syndrome. The WristSaver MousePad provides a comfortable rest for your wrist, plus a conventional mouse pad. Simple finger movements replace sliding the entire arm or hand.
Manufactrer: LB Innovators
WristSaverMousePad **ACC0634 $18.**
WristSaver **ACC0550 $18.**
Bundle **BND0031**
(Available in Gray, Black, Red or Navy)

$29



ClickArt Color Graphics for Presentations

❼ Contains more than 250 high-quality, full color images created specifically for use in slide presentations. The images have been designed to deliver quick, clean visual impact against color backgrounds typically used in presentations. The subjects, appropriate for any type of business presentation, include people in office related situations, time, money, flags, maps, business symbols, communications equipment, computers, hand symbols, backgrounds, arrows, logos and more. ClickArt Color Graphics for Presentations is available in PICT2 format for the Macintosh and works with: Aldus Persuasion®, MS® PowerPoint®, CA-Cricket® Presents™, or any other application that imports PICT2 files. **Publisher: T/Maker GRA0272**

$109



ProModem 2400 Mini Plus

Now you can get V.42bis/MNP-5 data compression and error correction in a mini-sized 2400 bps modem, for up to 9600 bps throughput! All the features of a full sized modem at half the price and size. Offered as a complete communications package with MACKNOWLEDGE™ communications software and cable.
Manufacturer: Prometheus MOD0068

$149

Meeting Maker

❼ Meeting Maker™ is a Macintosh network application that helps you plan, schedule and confirm meetings. You can schedule a time and date, select required guests, reserve rooms and resources and prepare agendas. Meeting Maker also has a personal calendar that allows you to block out personal activities. **5-User BUS0165 $309.**

Instant Update

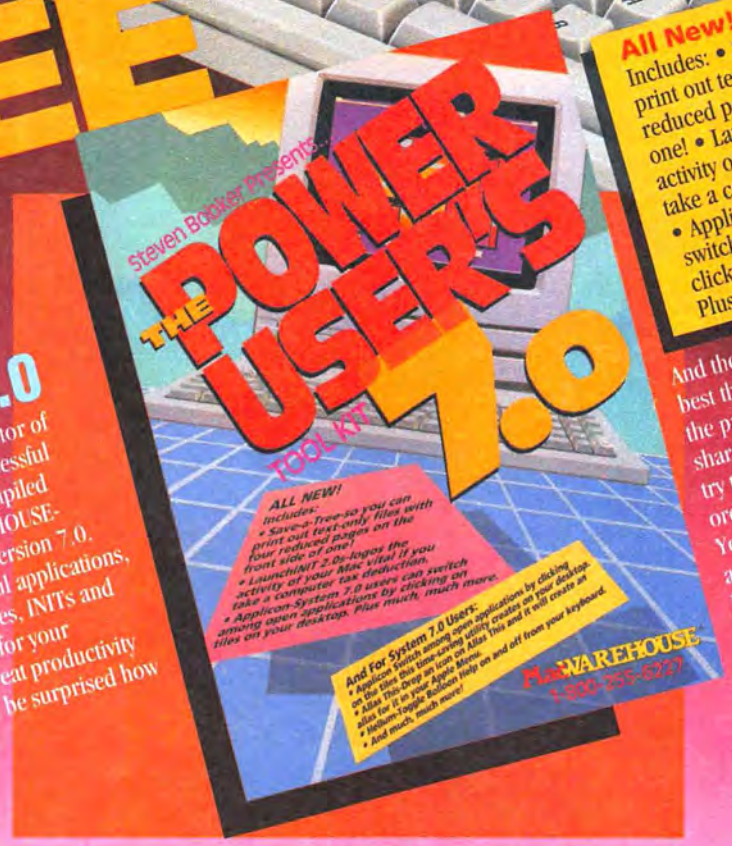
❼ Instant Update™, is a breakthrough collaborative application for Macintosh networks that helps you communicate through live documents. Create live documents just like any word processing document, and then distribute the document to other users on the network. Press the Update button when there is a black "incoming" arrow, and any changes that were made to the document are automatically incorporated into your copy.
Publisher: On Technology 2 User COM0096



$309

FREE POWER USERS TOOL KIT 7.0

If you're not already a collector of Steven Bobker's highly successful Power User's Tool Kit -compiled exclusively for MacWAREHOUSE- you'll want to start with version 7.0. It's stuffed with ten useful applications, utilities, desk accessories, INITs and System 7.0 extensions for your Macintosh. They're great productivity enhancers and you'll be surprised how easy they are to use.



All New!
Includes: • Save-a-Tree- so you can print out text-only files with four reduced pages on the front side of one! • LaunchINIT 2.0s - logs the activity of your Mac - vital if you take a computer tax deduction. • Applicon - System 7.0 users can switch among open applications by clicking on tiles on your desktop. Plus much, much more.

And the best thing is, the programs are shareware so you can try them FREE when you order from MacWAREHOUSE. You pay only $1.50 shipping and handling if you want the disk. If you wish to continue using the software, some authors ask that you pay a small fee ($5-$25). All the details are explained on the disk, which is yours to keep. Please remember to ask for item # AAA 0013 when you order.

White Knight V.11

The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991.
Publisher: Free Soft
COM0060



$85

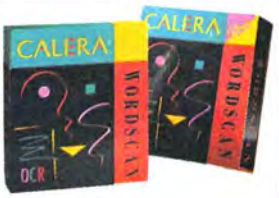
Blueprint 2.1



Blueprint makes 2D drafting and design easy. It has a hierarchical symbol library, automatic alignment, auto-dimensioning, and witness lines. It calculates with 9-decimal precision, so you can work at any convenient scale. Blueprint offers unlimited layers, color, hatching, mirroring, and a built-in DXF translator. Blueprint also exports EPS files.
Publisher: Graphsoft
CAD0024

$219

WordScan



WordScan offers the same basic OCR capabilities as WordScan Plus but does not include the more advanced features. **UTI0215**
$249.

WordScan Plus
offers accurate OCR with a wealth of user conveniences. Special dictionaries help WordScan read pages other software can't read. It even reads faxed documents and draft-quality dot matrix output. Deferred Processing allows you to scan now and process later. Advanced features include, Pop-Up Image Editor, AutoClipping and Style Sheets.
Publisher: Calera Recognition Systems
UTI0216

$739

THINK C 5.0



Integrates the editor, linker, and compiler to form a complete C language development environment. A multi-window text editor and a source-level debugger make finding and solving problems fast and painless. It's all new ANSI C compiler and code generator produce compact, efficient code, which is 32-bit clean. Runs in System 7.0 in either 24- or 32-bit mode, with or without virtual memory.
Publisher: Symantec
LNG0051

$199

I'm Kerry, call me at:

MacWAREHOUSE®
1-800-255-6227

(1-800-ALL-MACS)
Inquiries: 908-367-0440
FAX: 908-905-9279
Call 24 hours a day, seven days a week.
NEW! Express Customer Service Number: 1-800-445-9677
*Midnight Express service available weekdays.



We carry more than 2000 Macintosh products, including all the latest releases and new versions. We pride ourselves on getting new products first. Just fill in the information requested below and mail the coupon. We'll start your free, one-year subscription to the MacWAREHOUSE catalog with the next issue.



FREE CATALOG SUBSCRIPTION MUB2
Free MacWAREHOUSE Catalog Subscription
1690 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Please enter my free, one-year subscription to the MacWAREHOUSE catalog

Name _____

Address _____ Apt. _____

City _____ State _____ Zip _____

(Expect to receive your first issue within 4-6 weeks).

OVERNIGHT DELIVERY ONLY $3.00
1-800-255-6227

Mac WAREHOUSE

GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.



Accountant, Inc.

"Accountant, Inc. is the most complete integrated accounting and financial management package for the Mac" says MacUser magazine. It's an easy to use program that gives you exceptional power to streamline your accounting. You only have to enter information once because every transaction is automatically posted to the General Ledger. Accountant, Inc.'s revolutionary System 7 design means you can customize your forms, screens and reports by hot linking with your favorite forms design, spreadsheet and data base programs. You get Invoicing, Accounts Receivable, Inventory, Accounts payable, Check Writing, General and Payroll. Accountant, Inc. is available in single and multiuser versions. **Publisher: SoftSync/BLOC FIN0048**

$339



Puzzle Master

Solve crossword puzzles or create your own. Includes 250 of The New York Times® classic puzzles, 200 daily puzzles and 50 Sunday puzzles. Built-in timer and scoring system allows you to test your skill against the experts. **ENT0383 $29.**

Canis

A new educational/reference program for current and prospective dog owners. Includes VGA pictures of most popular breeds, health care, and nutrition. **ENT0384 $27.**

Blackjack Strategy Tester

Test Blackjack betting and playing strategies by playing up to 100,000 hands under a broad variety of setups. **ENT0329 $65.**

Casino Master

Offers all the fun of playing the odds in Las Vegas without the risks. Simulates the five most popular casino games: Blackjack, Craps, Roulette, Poker, and Baccarat.

Publisher: Centron Software ENT0277

$40

Symantec AntiVirus for the Mac (SAM) 3.0



SAM detects viruses by monitoring the suspicious activities that characterize them. New version 3.0 has enhanced update and repair capabilities, faster scanning, and more. The INIT portion acts like a watchdog during startup to detect viral activity. The CDEV portion operates during normal Mac usage, and offers a number of options for checking disks and folders as you work. Audit Trail keeps track of its activity and your responses. Includes Virus Clinic. **Publisher: Symantec UTI0214**

$65



HAND-Off II ver. 2.2.1

Get HAND-Off II for fast, easy file access. ••**SuperMenu**™ for System 7 makes the Apple menu multi-level. Instantly open or browse an unlimited number of files, folders, applications or aliases hierarchically. ••**Pop-up menuing** speeds opening files and applications with "Briefcases™" which create custom groups of applications and/or documents ••**"On-the-fly" application substitution** eliminates the annoying "Application Not Found" error message ••**Switches application color depth** and sound level automatically •• **AutoHide**™ reduces Desktop clutter by automatically hiding background applications. **Publisher: Connectix UTI0148**

$56

The UnMouse



The UnMouse does everything a mouse can—only faster, easier, and in less space. To move the cursor, simply slide your finger over the glass surface. To make a selection merely press down. The UnMouse also serves as an extended keyboard. Tap the large red button and you have a Power Keypad with 16 keys instantly available to execute macros (60 in advanced mode). With its one million touch points the UnMouse also performs as a small graphics tablet. **Manufacturer: Microtouch INP0084**

$159

Targus Universal Notebook Carrying Case for the Mac



Designed especially for the new generation of Notebook Macs, The Targus Universal Notebook Carrying Case provides a convenient way to tote your computer and accessories (including a printer). Two padded compartments (11x13x2.5 inches each) keep your Notebook computer and accessories separated. Non-skid rubber feet, rugged Coskin finish, velcro closures and self-healing nylon zippers top it off.

Manufacturer: Targus ACC0675

$79



PowerCache

33, 40, 50 MHZ PowerCache. Here's the affordable way to get the maximum from your software. DayStar's propietary technology combines a blazing fast 68030 processor with a superfast RAM cache. Now you can get 040 performance with proven 030 compatibility including System 7.0 virtual memory. Accelerates virtually every function in all applications. An optional math chip is a real time saver for spreadsheet recalcs and scientific tasks. The universal design makes it easily transportable to almost every Mac including the SE/30, II, IIx, IIcx, IIC, IIsi & IIci, Guaranteed 100% compatible. **Manufacturer: DayStar Digital See line listings for prices. PowerCache 40MHz DRI0467**

$949



Rapport

Use any combination of Rapport and Kennect's Drive 2.4 (3.5") or Drive 1200 or Drive 360 (5.25") to read, write and format all Mac and IBM formats on your Macintosh. Or use Rapport alone on older Macintoshes to read IBM files from your internal drive.

Manufacturer: Kennect Technology
Drive 2.4 DRI0141 $325.
Drive 360 DRI0219 $259.
Drive 1200 DRI0218 $259.
Rapport DRI0140

$195

COMPUSERVE®

You can now contact MacWAREHOUSE or place orders with us in the **Electronic Mall** on CompuServe. The **MacWAREHOUSE GO code** is **GO MW**. As always, you'll get fast, dependable overnight service and you can leave messages for Kerry or any of our support staff.



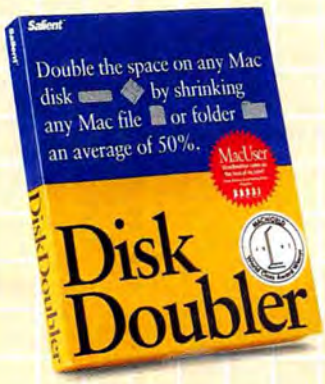
ORDER UNTIL MIDNIGHT(EST) FOR OVERNIGHT DELIVERY



MacPrint 1.2

❼ Use a Macintosh with non-Apple printers. Print Mac applications on HP Laserjet, Deskjet or compatible printers including all Series IIs, IIIs and the Deskjet 500. Prints text and graphics at the printer's maximum resolution. Does not require PostScript. Cable is included. **Publisher: Insight Development UTI0098**

$95



DiskDoubler 3.7

❼ DiskDoubler 3.7, the system 7 savvy version, can double your hard disk and floppy disk storage capacity without the expense of an additional hard disk. The new version provides even more enhancements, including smaller compressed file sizes, increased compression speed, and self expanding files, which may be expanded without needing the DiskDoubler application. DiskDoubler can also split large files into pieces for backup purposes and combine files together for telecommunications. Works transparently within any application, and operates in the background under MultiFinder. DiskDoubler works with documents, applications, plus sound graphics, and scanner files. **Publisher: Salient Software UTI0179**

$49

Word Search Deluxe

❼ Perfect for newsletters, classrooms, and puzzle enthusiasts everywhere. Fun to create. Fun to play. Improve your vocabulary in any subject. Use as stand alone application to create, play and print word search puzzles or use in combination with word processing, paint and page layout programs for more decorative results. Supports color and digitized sounds. **Publisher: Nordic Software EDU0276**



$35



MAXIMA 2.0

❼ **4MB SIMM users!** MAXIMA 2.0 extends your RAM access to as much as 128MB. Creates a powerful non-volatile RAM disk that survives system crashes, Restarts, and shutdowns. Use the RAM disk to reduce boot time, accelerate many routine operations, and speed up memory intensive applications. Get MAXIMA 2.0 to maximize your RAM investment for System 6 or 7 in 24- or 32-bit mode. **Publisher: Connectix UTI0209**

$45



The "ULTIMATE" Classic & Classic Extended Carrying Case

All Ultimate style carrying cases are designed with the same high quality standards as other MacLuggage™ products. The "Ultimate" Classic case (pictured closed), offers padded internal compartments for keyboard, external drive, mouse & cords. The Classic Extended case (pictured open) offers these same features plus an internal 9x9x3" padded peripheral pocket. Both models offer two external pockets for everything from disks to umbrellas. Combine these features with sturdy Dupont Cordura Plus™ nylon exteriors, 1/2" high density foam padding, and a LIFETIME WARRANTY and you'll see why these are the "Ultimate" carrying cases for your Mac. Available in navy blue and black. **Manufacturer: I/O Design, Inc.**

Ultimate Classic ACC0529 $65.

Ultimate Classic Extended ACC0440

$85



FileGuard 2.7

❼ "It's sleek, fast, and safe. I highly recommend it." MacUser April 1991. Protect your Hard Drives and Partitions from unauthorized access (including security bypass with a system diskette), copying and erasure; Applications and File/Folders (including system folder) from unauthorized access, deletion, and /or illegal copying; Desktop (including system folder) from alterations by unauthorized user; Keep an eye on System Usage with the system users log which continuously tracks user/group activity. System 7 compatible. **Publisher: ASD Software Office 5 Pack UTI0130 $499. Office 10 Pack UTI0131 $799. Single UTI0135**

$139

Design Your Own Home:



Design Your Own Home: Architecture, Interiors, or Landscape. Create floor plans and building plans with structural details. Do individual room plans and kitchen/bath design. Then complete your dream house with graphic landscape plans. Interiors and Landscape programs generate 4 side views from top-view perspective. Sample plans included. **Publisher: Abracadata**

$65ea.

ResumExpert

❼ Whether you're seeking an entry-level position or an executives corner office, ResumExpert Software Editions are the next best thing to knowing the boss. Each edition features 40+ professionally written and fully-formatted Microsoft Word templates that let you quickly and easily create eye-catching resumes. Just select a template, highlight the text and substitute your personal information. MacUser 10/89 awarded ResumExpert 4 mice and raved about the "excellent" manual that includes expert writing tips. MacUser 12/89 rated it as one of the Top 200 Software Programs of 1989. See listings for editions. **Publisher: A Lasting Impression BUS0087**

$49



Mac WAREHOUSE

GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.



ACCESSORIES

Fuji
MED0056 MF2DD 100PK ... 59.
MED0047 MF2HD 50PK ... 59.
I/O Design, Inc.
ACC0440 Ultimate Classic/SE Ext. Carrying Case - Navy ... 85.
ACC0528 Ultimate Classic Carrying Case ... 65.
ACC0655 PowerBook Carrying Case ... 75.
Kensington
ACC0621 Classic Anti-Glare Filter ... 49.
ACC0618 LaserStand ... 129.
ACC0459 SE Anti-Glare Filter ... 52.
LB Innovators
BND0031 WristSaver/MousePad Bundle ... 29.
Sony
MED0031 Disks - 1.44 Mb High Density (3.5) ... 21.
MED0003 Disks - DS/DD (box of 10) ... 13.
Targus, Ltd.
ACC0251 Imagewriter II Carry Case ... 49.
ACC0252 MacPlus/SE Carry Case (black) ... 65.
ACC0250 MacPlus/SE-Ext Keyboard Carry Case ... 79.
ACC0522 Premier Classic Carry Case w/KKB ... 79.
ACC0675 Universal Notebook Case ... 79.

BUSINESS & PRESENTATION

A Lasting Impression
❼ResumExpert: Word 30/4.0 version, Cover Letters, Manager, Sales & Marketing, Students, Computer Science & Engineering, Financing & Banking ... 49. ea.
Aldus
❼BUS0066 Persuasion 2.0 ... 339.
CE Software
❼GRA0070 CalendarMaker 3.0 ... 31.
ChipSoft
❼FIN0132 MacInTax '91 ... 59.
Claris
❼DAT0064 FileMaker Pro ... 215.
❼BUS0058 MacProject II 2.5 ... 359.
❼BUS0178 Resolve ... 279.
❼BUS0065 SmartForm Designer ... 289.
Fox Software
❼DAT0047 FoxBASE+/Mac 2.0 ... 295.
Intuit
❼FIN0130 Quicken 3.0 ... 44.
Kaefron
❼BUS0100 TopDown 3.0 ... 219.
Lotus Development Corporation
❼BUS0188 Lotus 1-2-3 for Macintosh ... 329.
Meca
❼FIN0039 A. Tobias' Managing Your Money 4.0 ... 139.
Microsoft
❼BUS0167 Microsoft Excel 3.0 ... 299.
❼BUS0008 Microsoft PowerPoint 2.01 ... 245.
❼BUS0181 Microsoft Project 1.1 ... 449.
❼BUS0186 Microsoft Schedule+ 5 Pack ... 129.
❼BUS0014 Microsoft Works 2.0 ... 159.
❼BUS0088 The Microsoft Office 2.0 ... 479.
On Technology
❼BUS0165 Meeting Maker 5-user ... 309.
Portfolio Systems
❼BUS0101 Dynodex 2.0 ... 72.
Power Up
❼BUS0153 Address Book Plus 2.0 ... 65.
❼BUS0073 Calendar Creator ... 45.
❼BUS0121 FastForms 2.0 ... 115.
Reality Technologies
❼FIN0068 WealthBuilder (Mac) ... 95.
Round Lake Publishing
❼BOK0026 Legal LetterWorks ... 52.
❼BOK0007 LetterWorks ... 52.
❼BOK0016 Sales LetterWorks ... 52.
Softsync/BLOC Publishing
❼FIN0048 Accountant, Inc. ... 339.
SuperOffice
❼BUS0191 SuperOffice Single user ... 249.
❼BUS0192 SuperOffice1-5 users ... 999.
Symantec Corporation
❼BUS0176 GreatWorks/free Norton Utilities ... 199.
❼BUS0055 More 3.1 ... 265.
Synex
❼BUS0120 MacEnvelope Plus 2.0 ... 185.
Teleware, Inc.
❼FIN0087 M.Y.O.B. 2.0 ... 139.
Timeslips
❼BUS0043 Timeslips III 2.0 ... 195.
T/Maker
❼BUS0193 The PowerBundle ... 159.

COMMUNICATIONS & NETWORKING

Argosy
❼COM0098 RunPC/Network ... 279.
❼COM0103 RunPC/Remote ... 139.
CE Software
❼COM0100 QuickMail 2.5 (1 - 10 users) ... 379.
Dayna
❼NET0125 DaynaPORT E/Z ... 279.
❼NET0076 DaynaPORT E/SE ... 229.
❼Farallon™ Computing
NET0145 New PhoneNET Ethernet Card-MacII ... 219.
NET0146 New PhoneNET Ethernet card-Mac II 10Pk ... 2149.
NET0147 New PhoneNET Ethernet Card-SE/30 ... 219.
NET0148 PhoneNET Ethernet Card-SE/30 10Pk ... 2149.
NET0149 PhoneNET Ethernet Card-IIsi ... 219.
NET0150 PhoneNET Ethernet Card-IIsi 10Pk ... 2149.
NET0007 PhoneNET® Plus, SE & II ... 31.
NET0019 PhoneNET StarController® ... 339.
NET0122 Timbuktu® 4.0 ... 129.
NET0034 Timbuktu Remote® 3.0 ... 129.
FreeSoft
❼COM0060 White Knight V.11 ... 85.
Insignia
❼COM0107 Soft PC Universal 2.5 ... 199.
On Technology
❼COM0096 Instant Update-2 user ... 309.
Pacer Software
❼NET0167 PacerForum ... 355.
❼COM0106 PacerTerm ... 159.
Sitka
❼NET0049 MacTOPS 3.1 ... 187.
Software Ventures
❼COM0094 Microphone II 4.0 ... 215.
Technology Works
❼NET0133 GraceLAN 2.0 50-user ... 295.

DESKTOP PUBLISHING

Aldus
❼DTP0072 PageMaker 4.2 ... 499.
❼DTP0040 Personal Press 1.01/free PGA Tour Golf ... 109.
Quark, Inc.
❼DTP0071 XPress 3.1 ... 589.
TimeWorks
DTP0048 Publish It! Easy with File IT! 2.1.2 ... 139.

DISK DRIVES & BOARDS

Computer Care
❼DRI0337 Mac Rescue Video ... 349.
❼DRI0338 Video Mac Pac ... 349.
Kennect Technology
❼DRI0140 Rapport ... 195.
Mass MicroSystems
❼DRI0253 DataPak ... 649.
❼DRI0254 DataPak IIC ... 749.
❼DRI0354 DataPak 88 Classic ... 899.
❼DRI0451 DiamondDrive 120 MB Fixed Drive ... 679.
❼DRI0453 DiamondDrive 320 MB Fixed Drive ... 1879.
❼DRI0452 DiamondDrive 210 MB Fixed Drive ... 1139.
❼DRI0454 DiamondDrive 510 MB Fixed Drive ... 2599.
Peripheral Land, Inc.
❼DRI0375 Infinity 88 Removable single ... 849.
❼DRI0193 Infinity Dual 40Mb Removable ... 1199.
❼DRI0115 Infinity Turbo 40 Meg Removable ... 699.
PowerUser™
❼DRI0201 20 Meg External Hard Drive ... 329.
❼DRI0206 44 Meg Removable ... 589.
❼DRI0455 88 Meg Removable ... 829.
❼DRI0203 40 Meg External Hard Drive ... 349.
❼DRI0204 60 Meg External Hard Drive ... 399.
❼DRI0205 80 Meg External Hard Drive ... 449.
❼DRI0326 100 Meg External Hard Drive ... 499.
SuperMac
❼DRI0437 Spectrum/8 24 PDQ ... 999.
❼DRI0438 Spectrum/8 24 PDQ si ... 999.
❼DRI0439 Spectrum/24 Series III ... 1799.
❼DRI0440 Spectrum/8si ... 559.
❼DRI0441 Spectrum/8LC ... 559.
❼DRI0442 Spectrum/8 SeriesIII ... 559.

EDUCATIONAL & ENTERTAINMENT

AmazeInc
❼ENT0400 The Far Side Computer Calendar ... 49.
Baseline
❼ENT0403 Talking Moose/Cartoon Carnival 4.0 ... 23.
Broderbund
❼GRA0268 Kid Pix 1.2 ... 35.
Where is Carmen Sandiego? ... ea. 29.
ENT0284 SIMCity ... 29.
ENT0356 SimEarth ... 40.
❼EDU0170 The Playroom ... 29.
Centron Software, Inc.
❼ENT0329 BlackJack Strategy Tester/ BlackJack Ace ... 65.
❼ENT0384 Canis ... 27.
❼ENT0277 Casino Master ... 40.
❼ENT0383 PuzzleMaster ... 29.
Learning Company
❼EDU0287 The Writing Center ... 59.
❼EDU0275 SuperSolvers Math: Out Numbered! ... 35.
MECC
❼ENT0381 The Oregon Trail ... 29.
❼EDU0190 Number Munchers ... 29.
❼EDU0191 Word Munchers ... 29.
Nordic Software
❼EDU0276 Word Search Deluxe ... 35.
Penton Overseas (Full line available)
❼Picture It! Level I: Spanish, German, French, Italian ... ea. 42.
❼VocabuLearn/cc Level I, II or III: French,German, Hebrew, Italian, Japanese, Russian or Spanish ... ea. 35.
Personal Training Systems
❼Macintosh, HyperCard, FileMaker Pro, Microsoft Excel, Microsoft Word, Aldus PageMaker 4.0, Aldus FreeHand, Aldus Persuasion, Quark XPress 3.0 ... ea. 52.
❼EDU0277 Converting to System 7-part 1 ... 52.
❼EDU0278 Converting to System 7-part 2 ... 52.
Sir Tech Software, Inc.
ENT0346 Bane of the Cosmic Forge ... 35.
Visionary Software
❼BUS0190 First Things First ... 49.
❼EDU0209 Synchronicity 3.0 ... 45.
Zondervan Publishing House
❼BOK0022 MacBible - Greek ... 119.
❼BOK0021 MacBible - King James Version ... 79.
❼BOK0033 MacBible NRSw/Apocrypha ... 79.
❼BOK0020 MacBible - New International Version ... 79.

FONTS & APPLICATIONS

Adobe Systems, Inc.
❼DAC0028 Adobe TypeAlign ... 65.
❼FON0264 Adobe Type Manager 2.0 ... 59.
❼FON0351 Adobe Type On Call ... 47.
❼FON0295 Adobe Type Reunion ... 41.
Broderbund
❼FON0439 TypeStyler 2.0 w/ATM ... 129.

GRAPHICS & MULTIMEDIA

Abracadata
CAD0032 Design Your Own Home-Architecture ... 65.
CAD0033 Design Your Own Home-Interiors ... 65.
CAD0034 Design Your Own Home-Landscapes ... 65.
Adobe Systems, Inc.
❼DTP0054 Illustrator v.3.2 (w/ ATM 2.0) ... 359.
❼GRA0125 Streamline 2.0 ... 122.
❼GRA0191 PhotoShop 2.0 ... 549.
Aldus
❼GRA0092 Digital Darkroom 2.0 ... 259.
❼GRA0305 FreeHand 3.1 ... 399.
GRA0131 Super 3D 2.5 ... 339.
❼HYP0027 SuperCard 1.5 ... 199.
❼GRA0112 SuperPaint 3.0/PGA Tour Golf ... 135.
Claris
❼CAD0029 ClarisCAD 2.0 ... 645.
❼GRA0271 MacDraw Pro ... 279.
❼GRA0117 MacPaint 2.0 ... 89.
Dream Maker
❼GRA0105 Cliptures Vol. 1 Business Images ... 69.
Graphsoft
❼CAD0024 Blueprint 2.1 ... 219.
Innovative Data Design
❼CAD0039 MacDraft 2.1 ... 279.
MacroMind/Paracomp
❼GRA0273 MacroMind Director 3.0 ... 699.
❼GRA0233 Swivel 3D Professional ... 435.
❼GRA0234 SwivelArt ... 81.
Metro Image Base (Full line available)
❼GRA0277 Metro-ImageBasics ... 35.
Pixar
❼GRA0288 MacRenderMan & Showplace Bundle ... 449.
Praxitel
❼UTI0211 Read My Lips ... 75.
Strata
❼GRA0274 StrataVision 3D 2.0 ... 759.
SuperMac
❼GRA0253 PixelPaint 2.1 ... 159.
❼GRA0249 PixelPaint Professional 2.0 ... 499.
T/Maker
❼GRA0272 ClickArt for Color Graphics Presentations ... 109.
Virtus
❼GRA0278 Virtus WalkThrough ... 259.

PERIPHERALS

Abaton
❼INP0157 Scan 300/Color ... 1199.
Caere
❼INP0205 Typist Plus Graphics ... 479.
Epson
INP0167 Epson EPL-7500 Laser Printer ... 2599.
Microtek
❼INP0180 Microtek ScanMaker 600ZS ... 1599.
Seikosha
INP0041 Seikosha SP 2000 AP Printer ... 235.
Sharp
COMP023 Wizard Oz 8200 (128KRam) ... 399.
SuperMac
MON0224 19" SuperMac Color Display ... 1799.
ThunderWare
INP0116 LightningScan 400 ... 385.
INP0189 LightningScan Pro 256 ... 519.
❼INP0007 ThunderScan Plus ... 199.

INPUT & OUTPUT

Canon
❼INP0184 XAPSHOT Computer Imaging Kit Color ... 899.
❼INP0185 XAPSHOT Computer Imaging Kit B+W ... 749.
❼INP0186 XAPSHOT RC-250 Black Standalone Camera ... 499.
CoStar
❼INP0196 AddressWriter Envelope Printer ... 499.
❼INP0194 Stringray ... 89.
Datadesk International
INP0174 Mac101E Keyboard ... 129.
INP0183 Mac 101E Keyboard w/Quickeys 2 ... 149.
Kensington
INP0060 Turbo Mouse ADB (SE or II) ... 109.
Key Tronic
❼INP0156 MacPro Plus ... 145.
❼INP0192 TrakPro ... 219.
MicroTouch
❼INP0084 The UnMouse ... 159.
Mouse Systems
❼INP0132 Little Mouse ADB ... 74.
❼INP0163 A3 Mouse ... 85.
❼INP3199 A3 Trackball ... 75.
Sophisticated Circuits
ACC0535 Power Key w/Quickeys Lite ... 64.
Wacom
❼INP0179 Digitizing Tablet 6" x 9" ... 589.

UPGRADES & ACCELERATORS

Connectix
❼UTI0209 MAXIMA 2.0 ... 45.
❼DRI0385 MC73 ... 159.
UTI0144 Virtual 030 2.0 VM3 ... 113.
DRI0185 Virtual 2.0 PMMU ... 188.
DayStar Digital
❼PowerCache 33 MHz ... 729.
❼PowerCache 33 MHz w/882 ... 989.
❼PowerCache 40 MHz ... 949.
❼PowerCache 40 MHz w/882 ... 1199.
❼PowerCache 50 MHz ... 1459.
❼PowerCache 50 MHz w/882 ... 1799.
❼DRI0224 FastCache IIci ... 279.
❼DRI0416 RAM PowerCard ... 499.
Total Systems
Gemini & Gemini Classic (Full line available)
❼DRI0361 Gemini Classsic 20MHz 68030/68882 ... 1079.
❼DRI0366 Gemini Classic 40MHz 68030 ... 1599.
❼DRI0364 Gemini CLassic 33MHz 68030 ... 1499.
❼DRI0297 Mercury 16MHz 68030 - SE ... 365.

MODEMS & FAX

Abaton
MOD0034 InterFax 24/96 ... 299.
Dove
❼MOD0053 Dove Fax Plus VOICE ... 349.
Hayes
❼MOD0060 Personal Modem 2400 Plus w/Smartcom ... 149.
❼MOD0065 Bundle 9600 ULTRA SmartModem ... 829.
PowerUser™
❼MOD0062 24/96 Mini Send/ Receive Fax Modem ... 199.
❼MOD0043 2400 Mini Modem ... 99.
❼MOD0047 Mini Send Fax 2400/9600 ... 149.
❼MOD0071 9600 bps/ V.32&V.42bis Modem ... 399.
❼MOD0070 2400 bps/V.42bis Mini Modem ... 149.
Prometheus
❼MOD0076 ProModem 2496 S/R Mini'ax Plus ... 279.
MOD0068 ProModem 2400 Mini Plus ... 149.

UTILITIES & PROGRAMMING

Abbott Systems, Inc.
❼UTI0236 Calc+ ... 39.
❼UTI0113 CanOpener ... 62.
Alysis
❼UTI0232 SuperDisk! 1.7 ... 49.
ASD Software, Inc.
❼UTI0135 FileGuard 2.7 ... 139.
❼UTI0130 FileGuard 2.7 - Office Pack 5 ... 499.
❼UTI0131 FileGuard 2.7 - Office Pack 10 ... 799.
Baseline Publishing
❼UTI0183 ScreenShot 1.2 ... 34.
Berkeley System Design
❼UTI0119 After Dark 2.0 ... 29.
❼UTI0231 More After Dark/ After Dark 2.0 Bundle ... 45.
CE Software
❼UTI0188 Quickeys 2 v.2.1 ... 94.
Connectix
❼UTI0148 HAND-Off II 2.2.1 ... 56.
Fifth Generation Systems
❼UTI0087 SuitCase II 1.2 ... 55.
Insight Developement
❼UTI0098 MacPrint 1.2 ... 95.
Kensington
PassProof ... ea 69.
Microcom
❼UTI0191 911 ... 89.
❼UTI0233 Citadel ... 89.
❼UTI0093 Virex 3.5 ... 59.
Salient
❼UTI0179 DiskDoubler 3.7 ... 49.
Symantec Corporation
❼UTI0151 Norton Utilities for the Mac 1.1 ... 87.
❼UTI0214 Symantec Antivirus for Mac 3.0 (SAM) ... 65.
❼UTI0241 Symantec Utilities for Mac 2.1 (SUM) ... 99.
❼LNG0051 THINK C 5.0 ... 199.

WORD PROCESSING

Baseline
❼SPL0029 Thunder 7 1.0.4 ... 56.
Caere
❼UTI0237 OmniPage 3.0 ... 495.
Calera
❼UTI0215 WordScan ... 249.
❼UTI0216 WordScan Plus ... 739.
Claris
❼WRD0026 MacWrite II 1.1 ... 139.
Microsoft
❼WRD0050 Word 5.0 ... Call.
T/Maker Co.
❼WRD0036 WriteNow 2.2-3Pak ... 249.
WordPerfect
❼WRD0041 WordPerfect 2.0 ... 279.
Writing Tools Group
❼SPL0028 Correct Grammar 2.0 ... 55.
❼SPL0030 American Heritage Electronic Dictionary ... 59.

MUB2

- All major credit cards accepted. No surcharge.
- Your credit card will not be charged until your order is shipped.
- If we ship a partial order, we pay the freight on the remaining portion.
- All U.S. shipments are insured at no extra charge.
- C.O.D. orders accepted(add $6.00 including shipping)-$1,000 maximum. Cash, money order, or cashier's check.
- Corporate purchase order accepted subject to credit approval.
- All products are covered by a 120 day limited warranty.
- **Sales Tax:** CT residents add 6%, NJ residents add 7%, Ohio residents add appropriate tax.

SHIPPING
- All orders add $3.00 per order. We ship Airborne Express overnight unless UPS Ground delivers overnight. (Some rural areas require an extra day.)
- Orders placed by12:00 MIDNIGHT (EST) (weekdays) for "in stock" items ship same day (barring system failure, ect.) for overnight delivery.
- C. O. D. orders ship via UPS (Blue Label if you are more than 2 days from us via UPS Ground). Charge is $6 including shipping.
- Alaska, Hawaii, outside continental U.S., APO/FPO call 908-367-0440 for information.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion.
**We regret that we cannot be responsible for typographical errors.*

I'm Kerry, call me at:

MacWAREHOUSE®

1-800-255-6227

(1-800-ALL-MACS) Now works in Canada.

Inquiries: 908-367-0440 **FAX:** 908-905-9279 **(NOTE NJ AREA CODE)**
1690 Oak Street, P.O. Box 3031
Lakewood, NJ 08701

NEW! Express Customer Service Number:
1-800-445-9677

For faster service for existing customers our computers recognize incoming calls by the telephone number and instantly locate your records.



©Copyright 1992 MicroWarehouse, Inc. MacWAREHOUSE™ is a division of MicroWarehouse, Inc. MacWAREHOUSE® and MicroWarehouse® are registered servicemarks of MicroWarehouse, Inc. Item availability and price subject to change without notice. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer.

The PowerUser Hard Drive from MacWarehouse



MACWAREHOUSE TAKES THE HARD WORK OUT OF BUYING A HARD DRIVE.

The PowerUser Hard Drive is loaded with all the features you'd expect from a top quality drive. It's made for MacWAREHOUSE by a leading manufacturer - to our exacting specification. Its superior design fits right under the Mac Plus, Classic or SE, bringing the screen up to a convenient height.

STATE-OF-THE-ART COMPONENTS.

The PowerUser Drive is packed with quality components. There's a rear panel SCSI address selector switch, two 50-pin SCSI connectors, and removeable internal SCSI terminators. Each drive includes the popular "Disk Manager Mac" software by On Track, and is pre-formatted - ready to use right out of the box. Each unit goes through quality control and testing before it leaves the factory. The comprehensive "User Manual" includes all the necessary step-by-step instructions.

THIRTY-DAY MONEY BACK GUARANTEE.

Try the PowerUser Hard Drive for thirty days, and if you're not completely satisfied, call us for an RMA number and return it with all of its documentation for a full refund. The PowerUser Hard Drive is covered by a one year manufacturers warranty and, if you do ever have a problem, the MacWAREHOUSE loaner drive program guarantees you'll never be without a drive for more than a few hours.



Low cost expandability
PowerUser 44MB Removable
Here's the solution for people who have changing storage needs. Whenever you need more space, just add another economical 44MB cartridge. The PowerUser 44MB Removable contains the industry-standard Syquest mechanism. Manufacturer's 1-year warranty. Price includes one cartridge.
DRI 0206
Manufacturer: PowerUser **$589**

20MB Hard Drive . . . $329	80MB Hard Drive $449
40MB Hard Drive . . . $349	100MB Hard Drive $499
60MB Hard Drive . . . $399	200MB Hard Drive $899

Each unit goes through quality control and testing before it leaves the factory. The comprehensive "User Manual" includes all the necessary step-by-step instructions.

1-800-255-6227
Overnight Delivery only $3.00
Call 24 hours a day, 7 days a week
© 1992 Micro Warehouse Inc.

Tomorrow's Upgrade For Your Mac Is Only $49*

A MacWarehouse Expansion Kit will dramatically increase the power of your Mac. And our fast, reliable overnight service will have your kit in your hands tomorrow!
(Ask for item # CHP0012 120NS)

	STANDARD	FOR 2MB	FOR 2.5MB	FOR 4MB
MACINTOSH CLASSIC	1MB SURFACE MOUNT	ADD A 1MB EXPANSION CARD	ADD A 1MB CARD & 2-256K SIMMS	ADD A 1MB CARD & 2-1MB SIMMS *OR* ADD A 3MB EXPANSION CARD

The Mac Classic comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Additional memory for your Mac Classic is provided by an Expansion Board, which slides into a slot on the Classic's motherboard. The Expansion Board can be purchased with 1MB of memory (for a total of 2MB), and then two 1MB SIMMs can be added to the Expansion Board later, for a total of 4MB. Or, you can install a 3MB Expansion Board, which brings your Mac Classic up to its full 4MB.

	STANDARD	FOR 2MB	FOR 2.5MB	FOR 4MB
MACINTOSH PLUS & SE	4-256K SIMMS	ADD 2-1MB SIMMS	ADD 2-1MB SIMMS & 2-256K SIMMS	ADD 4-1MB SIMMS

The Mac Plus and Mac SE have four available slots on the motherboard, which originally contain four 256K SIMMs modules — totalling 1 megabyte (1MB) of memory. To upgrade, you can replace each 256K module with a 1MB module, but you must do this in pairs. Replace two 256K modules and you will have a total of 2.5MB of memory. (That's the two new 1MB modules plus the original two 256K modules.) Replace all four modules and you'll have 4MB. (You should save the 256K modules for later use if you want to pass your Mac on to someone else.)

	STANDARD	FOR 4MB	FOR 6MB	FOR 10MB
MACINTOSH LC	2MB SURFACE MOUNT	ADD 2-1MB SIMMS	ADD 2-2MB SIMMS	ADD 2-4MB SIMMS

The Mac LC comes with a standard 2MB of memory, surface mounted (soldered) to the motherboard, with two slots available for additional memory. The Mac LC can be upgraded to 4, 6, or 10 MB, depending on whether you are installing 1, 2 or 4MB SIMMs.

The Mac SE/30, II, IIx, IIcx, and IIci each come with a total of eight slots. The standard configuration has four 256K SIMMs modules, or a total of 1 MB. Here, memory must be upgraded in multiples of four. This allows for expansion from 1MB to 4, 5 or 8MB on the II and IIx, and up to 32MB on the SE/30, IIcx and IIci, depending on whether you are using 1MB, 2MB or 4MB SIMMs. If you are upgrading a Mac IIci, you must use SIMMs rated at 80ns or faster.

	STANDARD	FOR 4MB	FOR 5MB	FOR 8MB	FOR 9MB (IIci only)	FOR 16MB (IIci only)	FOR 32MB
MACINTOSH SE/30, MACINTOSH II, IIx, MACINTOSH IIci, IIcx	4-256K SIMMS	ADD 4-1MB SIMMS	ADD 4-1MB SIMMS & 4-256K SIMMS	ADD 8-1MB SIMMS	ADD 4-2MB SIMMS & 4-256K SIMMS	ADD 8-2MB SIMMS	ADD 8-4MB SIMMS

The Mac IIsi comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Four slots are available for additional memory, and you must upgrade your Mac IIsi in multiples of four. The Mac IIsi is expandable to 5, 9 or 17MB, depending on whether you are using 1, 2 or 4MB SIMMs, and the SIMMs modules must be rated at 100ns or faster.

	STANDARD	FOR 5MB	FOR 9MB	FOR 17MB
MACINTOSH IIsi	1MB SURFACE MOUNT	ADD 4-1MB SIMMS	ADD 4-2MB SIMMS	ADD 4-4MB SIMMS

FREE STEP-BY-STEP VIDEO INSTRUCTIONS**

Ask for item #AAA0004 and receive our FREE* video when you purchase two or more SIMMS modules.

Mac WAREHOUSE®

CIRCLE 156 ON READER SERVICE CARD.

MUB2P

TI made PostScript® printing affordable.



Now we've made it fast.

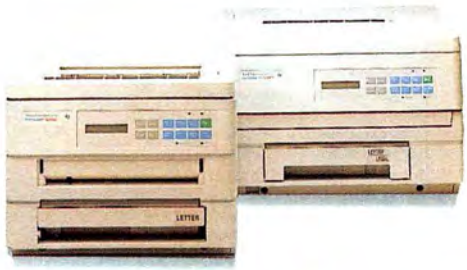
Introducing the TI microLaser™ Turbo printers: They race through sophisticated graphics software faster than other printers. POSTSCRIPT

How do they do it? A RISC-based 8220 board with PostScript software from Adobe® processes information from your computer quicker. So you spend less time waiting for graphic output.

Swift and still affordable, the personal 9ppm microLaser Turbo retails for $2,349* – a savings of more than $2,000 on the Apple LaserWriter® II NTX.

The 16ppm XL Turbo goes for $3,749* and is ideal for an AppleTalk® network. Both feature PostScript Level 2 with 35 scalable fonts. Two of the smallest footprints you'll find. And superior paper handling that includes a 250-sheet paper drawer that slides *inside* the printer.

Dial the number below for the name of your nearest TI dealer. And take a Turbo out for a spin.



1-800-527-3500.

TEXAS INSTRUMENTS

*Suggested retail price – dealer prices may vary. microLaser is a trademark of Texas Instruments Incorporated. Adobe, PostScript and the PostScript logo are registered trademarks of Adobe Systems, Inc. Apple, LaserWriter and AppleTalk are registered trademarks of Apple Computer, Inc.

©1991 TI 71832

CIRCLE 71 ON READER SERVICE CARD.

If you don't yet own ATM, then run, *don't walk, to the nearest phone; dial (800) 521-1976, ext. 4400; and ask for your free copy of ATM and Adobe Garamond. (International users, call [303] 799-4000, ext. 4600.) Yes, Adobe is now* giving away *ATM and four fonts as an interim way to provide Type 1 fonts to Mac owners until the technology is incorporated into System 7, per its agreement with Apple. (There is a $7.50 shipping fee.)*

By Aileen Abernathy



Fonts on demand: CD-ROM discs are an increasingly popular way for companies such as Adobe, Agfa Compugraphic, Bitstream, The Font Company, Image Club, Monotype, and URW to distribute typeface libraries. For $50 to $99 per disc, you can indulge yourself and have the entire libraries of several vendors at your fingertips. The catch: Only a few fonts are unlocked at purchase time. The rest are hidden until you call a toll-free number and trade your credit-card info for the access codes. Monotype's FoneFonts disc contains more than 1,450 Type 1 faces from Monotype, Adobe, and the Font Bureau. $50 gets you the disc and eight faces; additional faces are $45 each. (312) 855-1440. Type Treasury ($69) contains Bitstream's library of more than 1,000 Type 1 and TrueType faces. Four faces are unlocked at purchase time; others cost $35 to $49 apiece. (617) 497-6222.

The German font giant URW recently opened a U.S. office ([603] 882-7445) and plans to release the TypeWorks CD-ROM disc in early 1992. The disc will contain 500 master designs from URW's extensive library (including some typefaces previously unavailable in the States) along with five "variations" — such as drop shadow, outlining, and relief — on each face, for a total of 3,000 Type 1 faces. $50 with six unlocked fonts (one face plus five variations). Despite increased competition, AgfaType remains the best deal, however. Version 3.0 has nearly 2,000 Adobe and Agfa Compugraphic Type 1 faces plus 20 TrueType fonts. The disc is loaded with extras, including 7 megabytes of shareware, several (locked) commercial programs, and a wonderful interactive tutorial on typography. For $99 you get 20 unlocked display fonts plus one Pi and Symbol font; $695 also nets you a Toshiba TXSM3301 CD-ROM drive. (508) 658-5600.

Color resources: Trapping remains one of the biggest stumbling blocks to getting high-quality color from the desktop. Now Pixel Ink ([415] 564-0962) is offering an interactive tutorial that teaches the basics of trapping: what, why, when, and how. The paltry $19 investment can save you thousands of dollars.



Agfa Compugraphic ([800] 395-7007 or [508] 658-5600) has released a sequel to *Digital Color Prepress*, its excellent booklet on desktop color. Volume Two ($10) focuses on color-halftone reproduction, copiously illustrating everything from scanning to screen angles to proofing. The newly formed National Desktop Color Alliance is dedicated to the exchange of reliable information about Mac-based color among vendors, designers, prepress houses, printers, and individuals. NDCA benefits include a monthly newsletter, a quarterly research journal, and regional meetings. Memberships are $295 for individuals and $995 for businesses. (202) 466-6322.

FONTEK™



60 exclusive faces now at your command

The Letraset Display Type Library Introduces FONTEK. Superior Quality Digital Display Type Fonts In TrueType™ and PostScript® Type 1 Formats For The Macintosh®.

- Unique fonts in classical and innovative styles from Letraset's world renowned display type library–typefaces which are unavailable from any other type foundry!
- Superior typographic quality –faithful to the library's original type designs in every detail –on screen and in print.
- Each FONTEK Digital Display disk features a complete character set, alternatives, accents and contains both TrueType and PostScript Type 1 formats.

For a free FONTEK Specification Brochure, or for more information on FONTEK just call 1-800-343-TYPE, or write Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653.

Ad design and digital illustration by Marcolina Design Inc., Philadelphia, PA

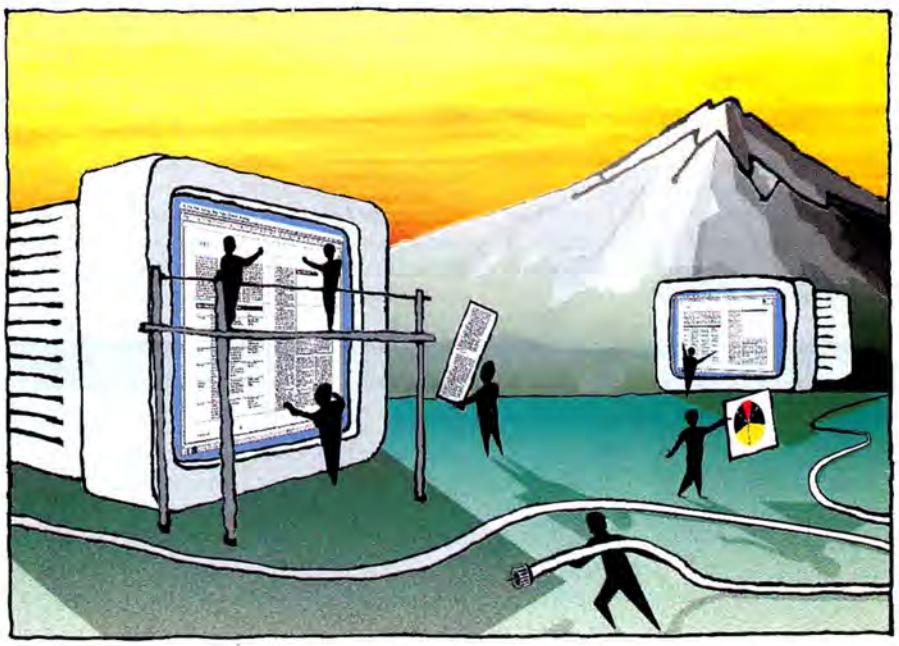
Letraset

CIRCLE 190 ON READER SERVICE CARD.

Workgroup Publishing

Publishing on the Mac no longer has to be a solitary pursuit. Powerful new publication-management tools can turn electronic publishing into a collaborative effort.

By Michael Roney



Five years ago, publishing with a Macintosh meant one person squinting into the 9-inch display of a Mac Plus, armed with a copy of MacWrite (or PageMaker 1.0), a handful of fonts, and a LaserWriter. Today, computer publishing has expanded beyond single users into the workgroup world of commercial publications. Mac-based publishing networks have replaced the proprietary, multimillion-dollar composition and production systems at some of the country's largest magazines and newspapers.

Unlike proprietary systems such as Atex, most Mac-based publishing tools have been designed for the individual. Because publishing is a collaborative effort, producing a complex publication on the Mac creates significant new challenges. A typical publishing scenario includes an editorial staff writing and editing copy to fit the available space, artists and photographers creating illustrations, an advertising department selling ad space for each issue, an art director designing layouts based on story assignments, and a managing editor planning and coordinating the assembly of the publication. Stories and pictures flow from one desk to another, are revised, and flow again (see Figure 1). Priorities shift, layouts are modified, stories are cut, ad sizes change.

How do you manage the tight communication and cooperation required to keep the process running smoothly? How do you monitor hundreds of publication elements, including editorial assignments, art, ads, and multiple story revisions? How do you track copy flow from one desk to another and manage constantly evolving layout requirements?

Until recently, Mac users did it the hard way, using schedule and assignment sheets, complex filenaming conventions, sneakernet copy routing, and endless photocopying. Necessity is the mother of invention, however, and a new generation of Mac-based workgroup publishing tools now offers powerful capabilities for tracking, assembling, and configuring all the elements of a publication.

We surveyed this rapidly evolving and diverse field, focusing on systems available from Managing Editor Software, North Atlantic Publishing Systems, Odesta, P.INK America, Digital Technology International, and Quark. A few of these products are available off the shelf, but most are sold by VARs (value-added resellers) and system integrators. Some products cost a few hundred dollars, but most will set you back thousands, and prices are usually quoted per workstation, or *seat*. The right product for you depends on your budget and publication requirements (see Table 1).

Common Features

The main advantage of publication-management tools is their ability to manage dozens of documents and to organize and track work

flow. All the products we examined are network-based systems that turn single-user applications such as QuarkXPress into powerful workgroup publishing tools. Most rely on Mac- or UNIX-based database servers for overall management, members of the Mac II family for graphics and page layout, and more-humble Macs (SEs or Classics) for text entry and editing.

These systems include many of the publication-management features of older, proprietary products, such as copy routing, parallel pagination, and access control (see Table 2). To these, they add the Mac's familiar benefits: a graphical user interface, modularity, and flexibility.

Open Architecture. Older Atex-style systems used only proprietary hardware and software. Some vendors of the new generation of publication-management tools also offer complete systems, but most take a more open, multivendor approach. Many products link to QuarkXPress for page layout; others let you use applications of your choice for both the *front end* (text composition and editing) and the *back end* (page design and output) of your production cycle.

Database Links. At the heart of many systems is a relational-database manager that ties the publication's many elements into a cohesive whole. The database server is a dedicated computer, with links to files residing there or on workstations around the network. From this central location, the database application keeps track of each element's status and location; controls who has access rights to specific files; and lets editors search for stories or graphics according to criteria such as creation date, issue, writer, or file type. Several of the database managers communicate with workstations by using SQL (Structured Query Language), the standard database query language. A key advantage of SQL is portability — a database manager that uses SQL can access information in any SQL database.

Table 1: Choosing a Publication-Management System

	Pros	Cons	Ideal Users
CopyFlow family	•Can mix and match modules for easy customization. •Accurate copy fitting and H&J with QuarkXPress. •Links PCs running XyWrite with Macs running QuarkXPress.	•No tracking for text files. •No advertising features. •Works only with QuarkXPress.	•Magazine with PCs running XyWrite and Macs using QuarkXPress.
ODMS	•Open architecture works with off-the-shelf software. •Powerful database manager with good file security. •Highly customizable.	•No built-in editorial, layout, or ad capabilities.	•Publication with unusual work flow or production process. •Publication with existing investment in Mac software for editing and layout.
Page Director	•Fast dummying capability. •Off-the-shelf integrated package. •Suggests color configurations. •Creates signatures. •Good value.	•No built-in database manager (will use QuarkDispatch). •Lacks file locking, version control, scheduling, H&J, and parallel pagination.	•Newspaper with multiple editions or tight deadlines.
P.INK Press	•Fast H&J handled at editorial workstations. •Powerful customizable database manager. •Optimized for large magazines. •Fast.	•Expensive. •Complex. •Works only with QuarkXPress. •Doesn't use QuarkXPress' H&J algorithms.	•Large magazine using QuarkXPress.
QuarkCopyDesk, QuarkDispatch	•Powerful full-featured database manager. •Fully integrated with QuarkXPress (including H&J) at editorial workstations. •Open and expandable with XTensions.	•Untested in the real world. •No parallel pagination. •Advertising, wire-service input, and signatures available only through third-party XTensions.	•QuarkXPress shop requiring full publication-management capabilities.
Speed family	•Fast, powerful, and comprehensive. •Heavy-duty database manager. •Open architecture. •Can be installed in stages. •Dummying capability.	•Expensive. •Complex installation.	•Large publication requiring total package. •Publication that wants to integrate off-the-shelf software.

Text Editor. Some systems include modules for writing and editing text. Many accept files from popular word-processing programs and traditional newspaper- and magazine-editing systems.

Dummying. The ability to create quick *dummies* (rough page layouts) without having to launch a page-layout program can save a lot of time at the outset of production and if you need to rearrange page geometry later.

Page Layout. Some publication-management products have their own layout modules, but most of them just supply links to QuarkXPress or other page-layout programs.

Copy Routing. All the publication management systems can automatically direct the flow of copy among writers and editors.

Copy Fitting. Professional publishing systems handle copy fitting through sophisticated H&J (hyphenation and justification) routines. H&J refers to the word-spacing and line-breaking rules used in typesetting and to the process of using those rules to format and fit copy into predefined text boxes. Publication-management tools offer varying levels of control over H&J.

Parallel Pagination. This feature lets two or more people work simultaneously on any given page or document, a real efficiency booster for most publications.

Access Control. When writers, editors, and designers work simultaneously on a publication, the control over story access and revision becomes very important. You don't want different versions of the same story floating around without a way of managing who does what to them or of keeping track of which version is the final one. Most systems have options that let an editor control access to selected files and system areas, maintain uniquely identified file revisions (*version control*), and prevent access to final approved stories (*file locking*).

Scheduling. All but one of the programs let you track the progress of publication elements. Typically, a spreadsheetlike list displays the status of all elements, providing detailed information about who has each story and where it is in the production cycle.

Wire-Service Input. Two of the products offer hooks for automatically downloading and formatting wire-service copy from AP, UPI, Reuters, and other news agencies.

Signatures. Large printing presses routinely print 8, 16, or 32 publication pages on a single sheet of paper, called a *signature*. The arrangement of individual pages in a signature — critical to the folding, cutting, and binding that follows — is called *imposition*. A few publication-management systems help automate the imposition process, taking into account such factors as process- and spot-color requirements.

Advertising. Many of the products offer modules for ad booking and accounting, and a couple of them provide ad-makeup capabilities.

Archiving. Some programs offer facilities for archiving stories and pictures in an electronic morgue.

Figure 1: Work Flow

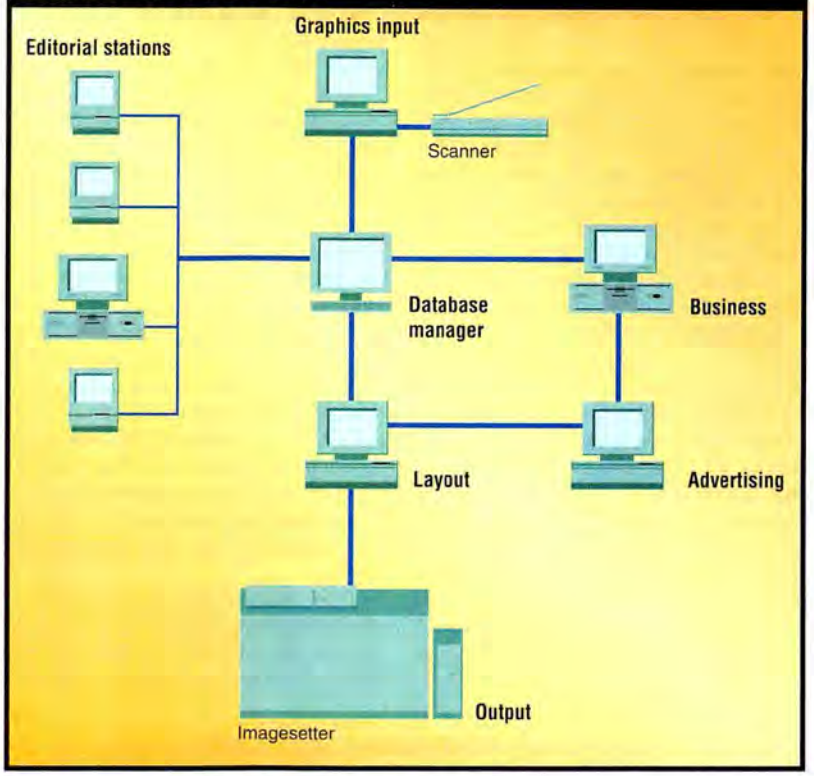


Figure 1: In a typical workgroup-publishing scenario, text is entered and edited on editorial workstations running off-the-shelf word-processing software. Page layout is handled on 68030-based workstations running software such as QuarkXPress. Text and layout information (such as copy-fitting needs) flow back and forth. An advertising staff creates display- and classified-ad elements, which are placed electronically on the pages. All publishing activities are tied together by a centralized database manager, which routes, tracks, and stores the various elements.

Page Director

Page Director 1.5 ($1,495), from Managing Editor Software, is a feature-packed stand-alone application that lets you quickly create a publication dummy from files created in just about any word-processing or graphics program. You then port the layout, including all elements and styles, to QuarkXPress (via a QuarkXTension) for final adjustments and output. Page Director also contains an impressive set of publication-management tools, enabling you to keep track of story creators and sizes, file locations, ad/editorial breakdowns, impositions, color pages, and scores of other variables. For your advertising department, Managing Editor offers Ad Director ($3,995, or $4,995 with PageDirector), which supports ad dummying; discrete handling of coupons, reverses, zoning, advertiser conflicts, and page requests; issue templating; multiple advertising classes; and libraries.

Unlike most products in this survey, Page Director can be bought off the shelf and ready to use. However, the program

lacks a high-powered database manager for tracking and storing publication elements, so it doesn't provide centralized automated features such as file locking, parallel pagination, and scheduling. (Managing Editor is currently developing an XTension to the QuarkDispatch database manager.) You can install Page Director in various configurations — on an isolated Mac, on one or two Macs linked to others on a network, or on several Mac workstations linked to a central file server — depending on your publication's workflow needs.

Laying out a publication with Page Director is easy and quick. First, you specify the design parameters: trim size, gutters and columns, text and picture boxes, color pages, and so forth. You then enter the names of the publication's elements; classify them by category (copy, graphics, or advertising); and assign typography, styles, colors, and sizing restrictions. (You can further divide items into subclasses such as feature stories or sports stories, photos or infographics, car ads or electronics ads.)

Once you've defined the elements, you enter a location for each or import a tab-delimited run sheet to tell Page Director where to find them. The Gatherer then retrieves the elements (from anywhere on the network) and creates an Items List, which shows all the elements and their characteristics. Drag a story or picture from the Items List onto a page grid, and the selected item automatically adjusts itself to fit the free space most efficiently.

Although Page Director doesn't support parallel pagination, it can merge individual pages from several documents into one finished issue, enabling designers to work simultaneously on different pages of the same publication. You can change page positions within a signature simply by dragging, find married pages (those that need to be kept together), and have up to 2,048 color configurations (color-page groupings for press runs). Page Director can even suggest optimum color configurations based on the size of the issue and the number of spot- and process-color pages.

Those in an all-Mac shop should have no trouble using Page Director with the software they already own. For those who have PCs on their network, it accepts Mac-readable files (such as those in Microsoft Word or ASCII format). Managing Editor also sells a filter ($1,000 plus $300 per user) for XyWrite, the PC word processor used at many commercial publications. The company plans to extend Page Director's usefulness with XTensions to QuarkDispatch (Quark's new publications database manager) and QuarkCopyDesk (a workgroup editorial tool). These hooks will let Page Director users access such features as text composition, parallel pagination, automatic copy routing, version control, and file locking.

Page Director is impressive in its power, flexibility, and level of integration with QuarkXPress. Its fast dummying capabilities improve on QuarkXPress' performance severalfold and are extremely valuable in tight-deadline situations. Once the links to QuarkDispatch are available, Page Director should come into its own as a full-featured publication-management system.

Users: *Colorado Daily, Playboy, Philadelphia Enquirer Sunday Magazine, Racing Times, Washington Post National Weekly.*

XTensions and Other Goodies

Thanks to numerous specialized XTensions, QuarkXPress is the best-equipped of all Mac page-layout programs for publication management. In addition to the four products mentioned in the main article, several other XTensions, most of which will have links to QuarkDispatch, bear mentioning.

Atan EXPRESS links Atex-created stories to QuarkXPress layouts while preserving all formatting. Likewise, QuarkXPress stories can be sent back to Atex for re-editing, wire transmission, or archiving. TMS EXPRESS does the same for copy generated with TMS or EMS front-end systems. First license, $5,000 for each product; each additional user, $2,000. John Juliano Computer Services, 4 Executive Park East N.E., Suite 100, Atlanta, GA 30329; (404) 321-3037.

Baseview Products offers an extensive collection of QuarkXPress-based publication-management tools. NewsEdit ($349) has a text editor and sophisticated copy-management features; it can also access wire-service input. WireManager ($1,895) feeds wire-service stories to a file server or local hard disk and will be able to link to QuarkDispatch and QuarkCopyDesk. ClassManager ($2,495) is a multiuser advertising database that has sophisticated entry, rate, and accounting functions. ClassManager/Plus ($2,995) adds WYSIWYG ad-text entry. TranTags ($395) and CommLink/Plus ($695) work together to bring code-driven text from old front-end systems into QuarkXPress. Baseview Products, Box 368, Dexter, MI 48130; (313) 426-5751.

DK&A's InPosition ($1,750) creates signatures and saves them in QuarkXPress' native format. Because the signatures are QuarkXPress documents, you can edit elements without having to reimpose the pages. PALOS ($6,500, plus $4,500 for each additional user) automates the layout of display ads and catalogs. It has three modules: PhotoCaps, a video-capture and -editing system; Adbase, a database that holds page geometry and parameters, text, and images; and AutoLayout, which automates the layout of display ads, ad copy, and photos and generates ad indexes. DK&A, 1010 Turquoise Street, Suite 310, San Diego, CA 92109; (619) 488-8118.

Mycro-Comp PAGE ($6,000), designed for use with Mycro-Tek's proprietary front-end editorial system, produces ad pages for editorial as well as classified sections. Features include vertical justification of columns, text jumps, graphics fitting, and ad import to page dummies. Mycro-Tek, 9229 E. 37th Street N., Wichita, KS 67226; (316) 636-5000.

NewsLink ($750) flows editorial copy into QuarkXPress from SunType editorial systems. AdLink ($2,500, plus $250 per user) provides advertisement-tracking and -scheduling capabilities. Synaptic Micro Solutions, 1075 S. Van Dyke Road, Appleton, WI 54915; (414) 734-6535.

SCS/LinX ($2,750) is a set of XTensions for quickly creating entire newspaper pages in QuarkXPress by importing page geometry and elements from front-end editorial systems, scanners, PostScript graphics programs, and wire services. Software Consulting Services, 3162 Bath Pike, Bath, PA 18064; (215) 837-8484.

Some new non-Quark products are also worth consideration. WriteOn is an open-architecture integrated system of planning, production, and administration modules being developed in the Netherlands by Van Gennep Media Automation. Van Gennep is reportedly negotiating with Linotype-Hell for U.S. distribution. Already used by three Dutch magazines, WriteOn is based on the Inside Out relational-database manager and works with off-the-shelf word-processing and layout software. WriteOn also has a PC module, and the company is currently developing XTensions for QuarkXPress.

Job Tracker ($695) is a customizable 4th-Dimension-based copy-routing and scheduling tool that can be used to track and report on story assignments, schedules, milestones, and histories. It's available in book and periodical versions. InfoSolutions, 147A Silverdale Road, Julian, PA 16844; (814) 355-2983.

newfaces

Why *you* should try *our* fonts.

Price!

Because with our ***"Buy one, get one free!"**** special, you won't find a better font value anywhere.

Quality!

Because we design our fonts to meet the high standards our customers need & expect. And of course, our fonts are all ***Type 1 PostScript***® format, completely compatible with Adobe Type Manager.™ Using system 7.0? Our fonts are available in ***TrueType***™ format as well.

Selection!

Because as PC Magazine (09/91) said, "If there's a typeface you haven't been able to find, chances are you didn't look in the Image Club Typeface Library." We have ***over 630 typefaces***, with more on the way. Whether you need fonts for your ***Macintosh® or IBM® PC*** system or even on CD ROM, you're sure to find them at Image Club.

Service!

Because there isn't anything we won't do to keep your loyal business. That means before, during & ***especially*** after you place your order.

Guarantee!

Because ***satisfaction is guaranteed,*** or your money back.

Order it today! Use it tomorrow!

1. Carefully select all the fonts you want. Complete font families only. Minimum $100 order.
2. Select the same value of ***fonts for free.**** Again, complete font families only.
3. Call our order desk.

Call 1-(800)-661-9410

Guaranteed overnight Federal Express delivery.

Outside the USA call (403) 262 8008. Or place your font order by fax or mail. All major credit cards accepted. *The "Buy one, get one free!" offer expires 01/31/92. For a free catalog featuring the entire Image Club product line, call (403) 262 8008.

Image Club Graphics, Inc.
Suite 5 - 1902 Eleventh Street Southeast
Calgary, Alberta, Canada T2G 3G2
Phone (403) 262 8008 / Fax (403) 261 7013
Applelink CDA0573 / CompuServe 72560,2323

CopyFlow Family

North Atlantic Publishing Systems (NAPS), founded by two former Atex engineers, offers a variety of QuarkXTensions that let you merge off-the-shelf word processors and graphics programs with QuarkXPress. (NAPS is also developing Additions for PageMaker 4.2.) Using NAPS' highly modular approach, you can mix and match products according to your publication's needs, choosing relatively simple (and economical) assistance with copy routing and copy fitting or opting for a full-blown database manager that monitors and controls every aspect of the production process.

Most XTension modules can be purchased individually from NAPS, VARs, and system integrators. The database-management module, Publication Administrator, requires VAR installation and resides on a Mac file server.

NAPS' flagship product, CopyFlow ($395), provides powerful automatic links among QuarkXPress and external word-processing and graphics files. You set up the links by assigning names to text and picture boxes within QuarkXPress and identifying which file belongs in each box (or linked chain of boxes). With a single command, CopyFlow can then perform batch imports of individual items or of all text and graphics associated with the QuarkXPress document. Story revisions can thus be handled at editing or word-processing stations (including PCs running XyWrite) without the hassle of manually reflowing the revised text into the layout.

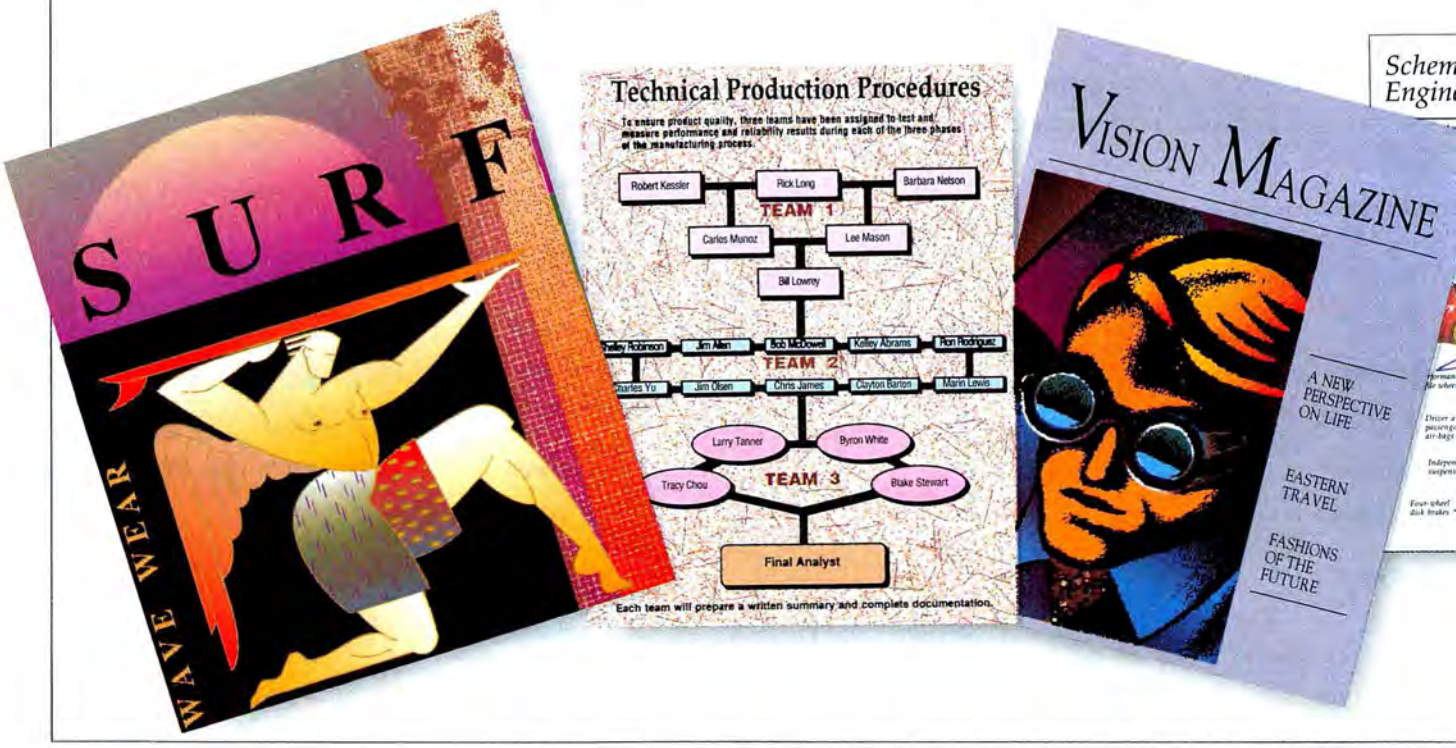
CopyBridge ($1,500) offers additional advantages for XyWrite users. It transmits QuarkXPress' H&J formatting to the linked text files, and it passes style-sheet data between XyWrite and QuarkXPress. NAPS is about to release CopyBridge/W ($1,995), which will provide the same level of integration between QuarkXPress and the Mac version of Microsoft Word.

Once you've named all the boxes in a publication, CopyFlow Reports ($225) can track the elements, providing status reports on each piece's page number, the QuarkXPress box name and its size, the amount of text currently in the box (or the amount of overset, or leftover, copy), the name of the editor working on the story, the last batch revision, and the file type and format.

It can also create thumbnail views of the pages with their assigned box names. For those who'd like to automate the creation of their publications, CopyFlow Geometry ($495) provides a scripting language for creating an ASCII text file with the necessary page-geometry descriptions. It subsequently reads the file and creates the QuarkXPress document to your specifications, including the import and placement of all elements.

NAPS' auxiliary products include Publication Locking ($250), which lets you lock the content and design of QuarkXPress pages (and their source files) on a box-by-box basis, preventing others from changing them. Relink ($149) automatically reflows text in the correct sequence if you change the order of linked text boxes, and Overset! ($69) creates a temporary text

It's a graphics program. It's a business program. Is not.



Silicon Beach Software, Inc., a subsidiary of Aldus Corporation. P.O. Box 261430 San Diego, CA 92126. (619) 695-6956. Aldus, the Aldus logo, and SuperPaint are registered trademark

box that displays the overset copy for any text box on a QuarkXPress page.

For those who require the tracking and sorting power of a database manager, Publication Administrator (base price, $4,500, plus $800 per seat) can help pull everything together. Using ACIUS' 4th Dimension as the front-end database manager, Publication Administrator monitors the status of every element in QuarkXPress installations across the network, providing customized status reports on each element's copy fitting, copy routing, publication locking, last import/export, and version number. Unfortunately, NAPS still has no facility for tracking files on the text-entry side, but this situation may be remedied with an XTension for QuarkCopyDesk.

NAPS offers an impressive array of tools at a reasonable price. Its CopyFlow family offers you the flexibility of building an automated management system in stages, with the option of full database-management capability (either 4th Dimension or QuarkDispatch). It may be the system of choice if you produce a high-quality commercial publication, have a network that includes PCs running XyWrite, and use QuarkXPress for page layout.

Users: *Allure, Business Week, BYTE, Cruising World, Family Circle, Food and Wine, PC Week, Reader's Digest.*

ODMS uses BLOB technology to give you control over tracking and security; the actual files, not just the pointers, are contained in the database.

ODMS

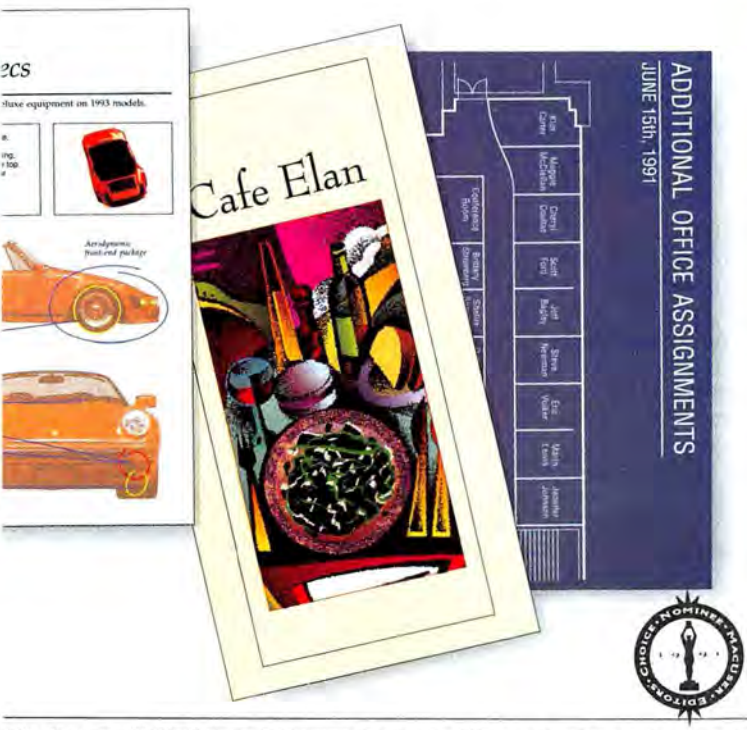
Unlike the other systems we surveyed, ODMS (Odesta Document Management System) wasn't designed specifically for magazines or newspapers. Instead, it has an open architecture that can be linked to nearly any page-layout software as well as to any word-processing or graphics program. This approach lets you use existing applications while gaining the power of a multiuser publication-management system. For example, ODMS can be integrated with FrameMaker across multiple platforms.

ODMS' open architecture enables it to fit in as well in the corporate world of staff-generated reports and proposals as it does in commercial publishing. There's even a bundled icon- and mouse-driven application generator that lets you create customized add-ons such as a graphics database, a cover index, or extra tracking and management routines.

ODMS was formerly sold only through VARs, system integrators, and third-parties such as DEC, but Odesta is now selling a do-it-yourself shrink-wrapped version at $500 for the base package and $1,500 per seat.

ODMS' power comes from tight integration with Odesta's Double Helix, a

Is so. Is not. Is so.



New Aldus SuperPaint 3.0.



(Suggested retail price $199.)

Let's put this argument to rest. It's both. SuperPaint® is the all-in-one program that makes it easy to do it all—combining paint, draw, and image enhancement—saving you time and money.

As you can see, its range of capabilities makes it perfect for either business users or graphic designers. And now with the added color capabilities, EPS import and export, textures, and gradients, it gives you even more creative options (by the way, it still works great in black and white).

Of course, the best way to settle any argument over SuperPaint is to try it.

See your Aldus dealer or call 206-628-2320 for more information.

ALDUS®
The Creative Edge in Business.

CIRCLE 148 ON READER SERVICE CARD.

Now Shipping

...t Aldus Corporation. ©1991 Aldus Corporation. All rights reserved. Surfer illustration © Mark Jasin / Martha Productions. All other illustrations © Rob Magiera / Stockworks.

relational-database manager. The database manager resides on a central server (VAX or Mac), and ODMS workstation modules run on Macintoshes on the network. For those who prefer a more powerful UNIX server and a database manager that uses SQL, ODMS also works with DEC's RDB database manager. Whereas many publication databases store only pointers to linked text and graphics, ODMS relies on BLOB (binary large object) technology, which lets it store file contents, including page layouts and graphics. This gives you enhanced control over tracking and security, because the actual files, not just the pointers, are contained (and therefore protected) within the database.

ODMS uses customized data-entry windows, called forms, for each basic task. There are forms for document entry into the database, project entry (setup and definition of the total project or publication), activity entry (defining the steps in the project, including scheduling and routing), and element entry (documents or graphics that can be linked to an activity).

You can link and track stories and tasks, using variables such as an author's name, a project name or issue, revision histories and deadlines, and priority levels. ODMS provides version control, check-in/check-out systems, file clearance and locking, distribution control, pagination (automatically moving documents to a single folder for pickup by the layout program), and archiving. You can customize all the menus, and any user with the proper clearance can check a publication's status.

ODMS is an ideal choice if you need tight control over element tracking and security, open architecture on both the text-editing and layout ends, or superior customization and add-on capabilities.

Users: *Digital Review*, *New York Daily News*.

P.INK Press

Designed from the ground up for QuarkXPress and SQL-database-management technology, P.INK Press is a high-end system that links a powerful database manager with tightly integrated QuarkXTension modules installed on individual Macintosh workstations — a text editor, a wire-service manager, booking and billing for classified advertising, a table editor, and page layout (using QuarkXPress) — plus the usual complement of publication-management tools. In fact, the XTensions are so tightly embedded in the QuarkXPress menus that it's sometimes hard to distinguish P.INK commands from standard QuarkXPress functions.

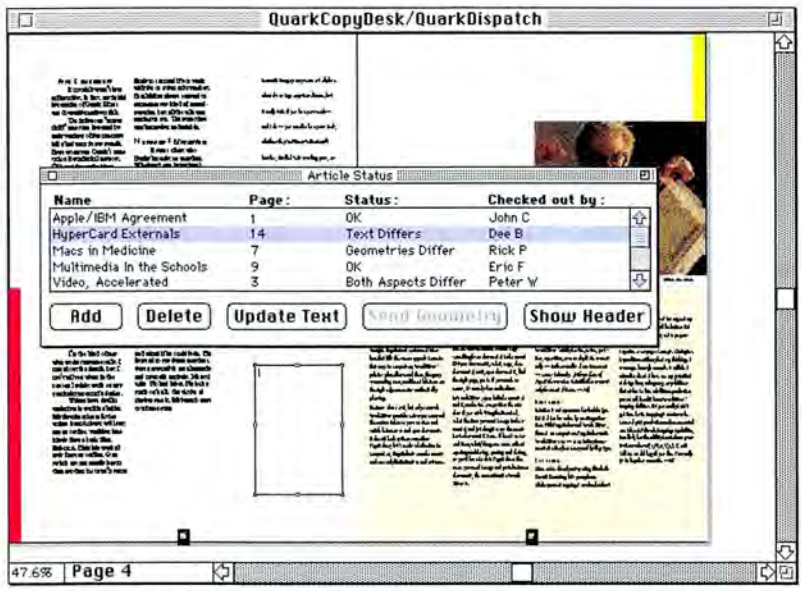


Figure 2: The Article Status palette in QuarkDispatch enables all members of a production team to track the progress of stories, even showing who has checked them out from the server. If a writer or editor alters an article's text, the layout editor will see a Text Differs message. Likewise, if the layout is changed, the writer will receive a Geometries Differ message that also specifies the amount of overset or underset copy.

Time, Inc., the sole owner of P.INK America, has already rolled out P.INK Press at *Money* and is currently testing the system at *Entertainment Weekly* and *Time*. The first commercially available version in the U.S. (version 2.0) should appear in early 1992. (P.INK is based in Germany, and P.INK Press is already available commercially in Europe. The largest installation is at the *Leipziger Volkszeitung*, a German newspaper with 150 networked Macs.) P.INK offers a modular, tiered pricing structure that amounts to about $3,800 per seat for an installation of 50 workstations.

The heart of P.INK Press is its database manager, named P.INK SQL, which can run on a Mac or on UNIX platforms (under SyBase), including VAX machines, IBM's RS/6000, and Sun servers. Database files can reside on the central server or on individual Macintosh workstations. P.INK Press' reliance on a SQL database manager lets users and other vendors extend the system's functionality with customized, fully integrated add-ons, using applications such as FoxBASE+/Mac, 4th Dimension, HyperCard, SuperCard, RagTime, WingZ, Excel, and other database managers.

As with other high-end packages, the layout, text-entry, and management modes work together closely. The process begins with the layout artist or art director designing pages in QuarkXPress. Writers and editors then create and modify text by using a powerful text editor, which can display copy in either "typewriter" or galley mode. Text flows over the network to the layout module (an enhanced version of QuarkXPress), where it's placed on the page and copy-fitted through use of P.INK Press' own dictionary and justification algorithms. (P.INK claims that its system matches QuarkXPress' final H&J routines more than 95 percent of the time.)

Several users can work simultaneously on a single page, and further modifications to stories from the text-editor module are automatically reflected in the copy that appears on the layout.

P.INK Press' speed is impressive; retrieving data from the P.INK SQL database is quite fast, even when you ask for thousands of records or build custom directories. The database is accessible from within any application via the List Box, a spreadsheetlike window that lets you customize the sorting and display of 35 story characteristics.

P.INK Press' system-administration features let you set user access rights and copy-flow and story-update parameters.

Backup. For people who don't.



Everyone who uses a Macintosh® ought to back up regularly. But most people don't back up at all.

In fact, if the people you work with are like those working in most places we know, about the only way their data is going to get backed up is if it happens without them.

Guess what?

Now it can.

Now you can set up fully automatic, unattended backups for every Mac in the house.

What's more, you can easily customize the nature and timing of each one to suit *your* specifications.

And transform a simple, effective backup policy from fantasy into fact.

All you need is Fastback Plus.

The Macintosh version of the world's most popular backup software is also the Mac world's most flexible backup software.

Along with being System 7 savvy, Version 2.6 lets you back up to just about anything you can think of, from floppies and hard disks to tape drives and any HFS device.

It also lets you back up in the background while you're using an application in the foreground.

Using Fastback Plus for Macs is very much like using Fastback Plus for PCs—same look, same functionality.

Same backups, even.

That's right. You can actually restore a Mac file directly onto a PC, and vice versa.

Nobody else can do that.

But then, nobody else can back up more than 1MB per minute on a Mac.

And no other program is backed up by our vaunted 24-hour toll-free technical support.

There's more. So pick up the phone. Dial 1-800-666-2904.

And tell everyone to stand back.

FIFTH GENERATION SYSTEMS, INC

CIRCLE 104 ON READER SERVICE CARD.

The wire-service module captures incoming stories and stores them in the database for customized keyword searches and retrieval directly into preformatted text boxes. The system's state-of-the-art advertising-management and accounting system is fully integrated into the overall publication database. Advertising managers have access to a full range of information on ad sizes and rates, run dates, ad makeup and status, and so forth.

If you have a complex publication produced by a large workgroup, need multiuser access to files, require powerful and flexible control over file tracking and version maintenance, and want to expand the system with your own SQL applications, you'll be hard-pressed to find a more complete and elegant solution than P.INK Press. P.INK Press' muscular capabilities are reflected in its complexity and relatively high price, however, making it most suitable for large commercial magazines.

Users: *Leipziger Volkszeitung, Money;* under consideration at *Entertainment Weekly* and *Time.*

Speed Family

Digital Technology's collection of Speed products, which includes PageSpeed, AdSpeed, and SpeedPlanner, represents a hybrid of conventional proprietary systems such as Atex and the modular open-architecture products currently in vogue.

DT can sell you a complete Macintosh-based hardware/software system, including text-composition and -editing, page-layout, graphics, copy-management, wire-service-input, advertising, accounting, output, and SQL-database-management capabilities — which are all installed by its technicians.

If you want to upgrade gradually, you can install one or two of the Speed modules and they'll work with existing applications such as PageMaker and QuarkXPress. Software-only costs run $795 to $8,995 per workstation (the latter price includes the SyBase database manager).

As the names suggest, DT's products are predicated on speeding up the workgroup publishing process, especially the handling of large color-graphics files. DT's setup includes a SQL database manager running under SyBase on a UNIX-based Sun server and editorial, pagination, advertising, and business modules running on Macintoshes. The database application supports fast and efficient search-and-retrieve capabilities, and because it contains only page geometry and pointers, with the actual files residing on SCSI-linked storage devices (usually 1-gigabyte drives), text and image transfer is relatively fast.

The Speed products are the only system other than Page Director to offer quick dummying capability, a major benefit in deadline situations. You create dummies in SpeedPlanner, which can produce layout templates for export to DT's layout module, PageSpeed, or to the page-layout program of your choice.

DT offers several alternatives for creating and editing text. SpeedWriter handles basic text entry, including tags. NewsSpeed offers text entry plus basic layout capabilities, including the production of headlines,

With Hundreds Of Ready-
You Can Now Quickly Create

Typical database, multimedia and communications tools for the Mac leave you hungry for more. More power. More flexibility. More connectivity. More productivity. Now it's time to get a taste of Serius Desktop Programming. With Serius Programmer™, application development no longer requires writing line after line of computer code. Serius offers you a whole smorgasbord of development tools that help you create sophisticated, stand-alone applications many times faster than any other tool available today. The Serius family of desktop



Serius and the Serius logo are registered trademarks of Serius Corporation. Serius Programmer and Serius Developer are trademarks of Serius Corporation. All other product names are trademarks or registered trademarks of their respective holders. ©1992 Serius Corporation, Salt Lake City, Utah.

rules, boxes, and tints. SpeedReader lets you import text generated on PCs and other platforms. DT's advertising modules include AdDatabase, a SyBase system with a 4th Dimension interface that's designed specifically to track display and classified ads.

The company also offers a complete graphics system that includes hardware and software for scanning, file transfer, graphics manipulation, and color separation. Although DT has standardized on Pre-Press Technologies' SpectrePrint Pro for color separation (DT calls it SpeedSep), the company will give you Photoshop or any other software you request.

You should consider DT's Speed system if you're looking for power and speed, have a Macintosh-based network, want quick dummying capability with full SQL-database-management power, like the idea of upgrading your publication-management system in stages, and have a bit of spare change to spend.

Users: *Detroit Daily News, The Daily Mail, London Evening Standard.*

QuarkCopyDesk and QuarkDispatch

The plethora of publication-management QuarkXTensions for QuarkXPress has not gone unnoticed at Quark. "When we see a lot of products extending QuarkXPress in a particular way, it's clear there's a significant user requirement that should be addressed," said Quark founder, Tim Gill, at last October's Seybold computer-publishing show.

Quark will enter the fray in the second quarter of 1992 with two fully integrated publication-management products for QuarkXPress. They are QuarkCopyDesk ($695 per seat), a text-entry and -editing module that can link editorial workstations with QuarkXPress, and QuarkDispatch ($2,995, plus $495 per seat), a non-SQL database manager that Quark claims is faster than SQL database managers. QuarkDispatch can link to QuarkXPress through an XTension that costs an additional $1,995 but can be freely copied. (Why is the QuarkDispatch XTension priced separately? Because Quark believes that QuarkDispatch can stand on its own as a product that can be used *without* QuarkXPress—for example, in networked word-processing or database-publishing systems.)

Unlike QuarkXPress, these products will not be sold in computer stores or by mail order but instead will be distributed through Quark's direct-sales force as well as through systems integrators. Quark estimates that a typical system (minus the QuarkXPress program), including software for 10 users and 90 days of 24-hour toll-free technical support, will cost around $17,880.

QuarkDispatch can keep track of as many as 10,000 customizable file headers. (The files themselves reside on a server—preferably, but not necessarily, the same Macintosh that holds QuarkDispatch.) QuarkDispatch offers a full set of routing, revision, and reporting features as well as a multilevel security system. With QuarkDispatch, an editor can organize users by publication (or publication subsection), each with its own style sheets, hyphenation

Made Objects And Functions, Applications To Suit Your Tastes.

programming tools includes high-level database, multimedia, communications, networking, and XCMD object libraries at a fraction of the cost of leading programs in those categories. And, they all work together...seamlessly. What's more, with Serius Developer™, advanced users can create their own new objects.



For a free demo disk or more information, call **1-800-876-6847** and see for yourself how Serius can give you all the tools you need to build applications the way *you* want them.

SERIUS®



CIRCLE 127 ON READER SERVICE CARD.

dictionaries, color palettes, and kerning and tracking tables.

QuarkCopyDesk is a workgroup editorial tool that includes word-processing, typographic, and copy-fitting tools. QuarkCopyDesk enables writers and editors at different workstations to "check out" stories that have been assigned within a QuarkXPress document, work on them, and then check them back onto the server so they can be incorporated into the completed layout.

Interestingly, QuarkCopyDesk does not require QuarkXPress; according to Quark, it can use another program for layout if that application is compatible with Quark's system.

An editor running QuarkCopyDesk can assign stories, set access levels, and check the current status of any publication element. When checking out a story, writers see a To Do palette that lists assigned tasks. They can choose to see the story displayed in any of three modes: WYSIWYG, which shows full page geometry and typography for precise copy fitting; Full Screen, which supports fast text entry and maximum readability by displaying the text in a resizable window in any font, size, leading, and line length; and Galley, which displays text in any font or size but with QuarkXPress' H&J intact.

The Article Status palette lets everyone on the production team keep tabs on the progress of stories (see Figure 2). If an article checked back onto the server has been changed in length or content, the layout editor will see a Text Differs message. Likewise, if the layout editor makes changes to page geometry in a QuarkXPress document, the writer will receive a Geometries Differ message, with the amount of overset or underset copy specified.

Third-party developers will be able to access the capabilities of QuarkDispatch and QuarkCopyDesk through programming routines called the Dispatch Interface Library. This access to and from Page Director's rapid layout capabilities, Baseview Products' wire-service manager, or NAPS' XyWrite-based CopyBridge will improve QuarkXPress' adaptability for large publications or workgroups with multiple hardware platforms.

As you might expect, QuarkCopyDesk and QuarkDispatch merge seamlessly with QuarkXPress and use all of its H&J algorithms. Furthermore, as an extensible application, QuarkDispatch will probably be linked to several word-processing and graphics applications for the Macintosh and PC — and ultimately, perhaps even with PageMaker or FrameMaker! The result is a powerful, open-ended, and highly integrated management system that should measure up extremely well to the existing products.

Users: None yet.

Michael Roney needs a publication-management system for his real job as the desktop-publishing editor for Bantam Computer Books.

Sell the Idea with Infini-D.™







You have great ideas. You need a tool to put your ideas to work.

Introducing Infini-D, a breakthrough 3D visualization package from Specular International.

Create stunning images for your proposals, prints and slides. Produce dynamic animations that breathe life into your video and multimedia presentations. All at a cost that will keep you ahead of the competition.

Find out why MacUser calls Infini-D "a quantum leap for 3D design packages priced at less than $1,000."

Call (413) 549-7600, and we'll send you a free interactive tour showing how Infini-D can transform your ideas into reality.

Sell the Idea. With Infini-D.

SPECULAR international™

253 North Pleasant Street ∞ P.O. Box 888
Amherst, MA 01004-0888 ∞ 413-549-7600

the imagination specialists

"Taster 3" ©1991 Steve McPartlum, Artbytes
"Lacrosse Shootout" ©1991 Peter Allen
"3D Box" ©1991 Robert Drummond, Murrie White Drummond Lienhart & Associates.
Infini-D™ and Specular International™ are trademarks of Specular International, Ltd. All other trademarks are property of their respective owners.

©1991 Specular International. All rights reserved. MacUser opens from October 1991 issue.

CIRCLE 85 ON READER SERVICE CARD.

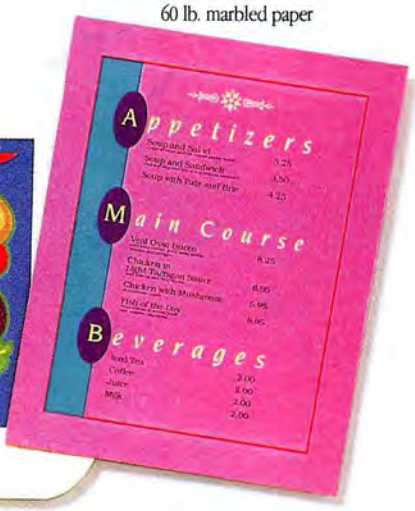
20 lb. copy paper



80 lb. text



60 lb. marbled paper



60 lb. text

It can take any paper you feed it.

80 lb. cover









24 lb. bond

20 lb. yellow pages paper

60 lb. marbled vellum

Have you ever wondered what your design would look like printed on a grocery bag? Okay, maybe not. But when you're working with a Phaser™ III color printer, your thoughts do tend to go a little wild.

Because you can feed the Phaser III any kind of paper, from 80 lb. bond to acetate. Even paper towels. It also takes sizes up to 12″ x 18″ for printing tabloid bleeds. And with 16.7 million colors delivered at 300 dpi, you get gorgeous color on any media.

It's driven by a 24 MHz RISC chip with 10 MB RAM. Fast enough for you? And with Adobe's PostScript™ Language Level 2, your message will come out loud and clear.

The only thing you need is a well-fed imagination. Call 1-800-835-6100 Dept. 21A for your free output sample.



Tektronix
The best and the brightest.

POSTSCRIPT Software From Adobe

Phaser is a trademark of Tektronix, Inc. for color printers and related products. PostScript is a trademark of Adobe Systems Incorporated which is registered in the USA and other countries. Other marks are trademarks or registered trademarks of the manufacturers or marketers of the products with which the marks are associated.

CIRCLE 47 ON READER SERVICE CARD.

Table 2: Features of Publication-Management Systems

● = yes
○ = no

	CopyFlow family	ODMS	Page Director
List price (per seat)*	$625 to $1,840	$1,500	$1,495; Ad Director, $3,995
Front end	open	open	open
Back end	QuarkXPress	open	QuarkXPress
Database manager	4th Dimension	Double Helix	none†
Features			
Text editor	○	○	○
Dummying	○	○	●
Page layout	QuarkXPress	○	QuarkXPress
Copy routing	●	●	●
Copy fitting (H&J)	●	○	○
Parallel pagination	●	○	○
Version control, file locking	●	●	○
Scheduling	●	●	○
Wire-service input	○	○	○
Signatures	○	○	●
Advertising	○	○	●
Archiving	●	●	○
Company	North Atlantic Publishing Systems 1744 Roswell Rd. N.E., Ste. 210 Marietta, GA 30062 (404) 973-6637	Odesta Corp. 4084 Commercial Ave. Northbrook, IL 60062 (708) 498-5615	Managing Editor Software 8208 Brookside Rd. Elkins Park, PA 19117 (215) 635-5074

*Prices are averages; the actual cost depends on the products selected and the number of workstations.

†Future version will have an XTension to the QuarkDispatch database manager, which will also supply other missing features.

Table 2: Features, continued

● = yes
○ = no

	P.INK Press	QuarkCopyDesk, QuarkDispatch	Speed family
List price (per seat)*	$3,800	$1,790	$795 to $8,995
Front end	P.INK Press	QuarkCopyDesk	DT's or open
Back end	QuarkXPress	QuarkXPress	DT's or open
Database manager	P.INK SQL	QuarkDispatch	DT SQL (Sun server)
Features			
Text editor	●	●	●
Dummying	○	○	●
Page layout	QuarkXPress	QuarkXPress	●
Copy routing	●	●	●
Copy fitting (H&J)	●	●	●
Parallel pagination	●	●	●
Version control, file locking	●	●	●
Scheduling	●	●	●
Wire-service input	●	XTension	○
Signatures	○	XTension	○
Advertising	●	XTension	●
Archiving	●	●	●
Company	P.INK America 1271 Avenue of the Americas New York, NY 10020 (212) 522-7465	Quark, Inc. 300 S. Jackson St. Denver, CO 80209 (303) 934-2211	Digital Technology International 500 W. 1200 South Orem, UT 84058 (801) 226-2984

*Prices are averages; the actual cost depends on the products selected and the number of workstations.

Organize your finances Quicken easy!

NEW Quicken 3.0!



The world's #1-selling financial software organizes home and small business finances better than ever – with more than 50 major new features and improvements.

So if you still haven't tried Quicken yet, new version 3.0 is a powerful reason to stop putting it off.

A more complete financial picture.

New Quicken 3.0 does a lot more than manage your checkbook and track expenses. Now it organizes everything from checking and savings accounts to cash, credit cards, assets and liabilities.

You can also track spending, savings and progress toward your goals more precisely than ever – with pre-formatted automatic reports like Cash Flow, Budget, Itemized Expenses, Tax Summary, Net Worth and more. Plus, you can customize your own reports and save them to use again and again.

Easier than ever.

Powerful new Quicken 3.0 is actually simpler than ever to use.

Now paying your bills is as simple as typing into the on-screen check register. New Quicken 3.0 does the rest. It memorizes your regular payments and prints out checks. And now it even lets you pay bills electronically through the CheckFree® payment service.

Meanwhile, it tracks exactly where your money goes – utilities, clothes, charity, etc. – to give you complete, accurate reports and cut tax preparation time to minutes.

Controls small business finances.

You'll be amazed at how much time new Quicken 3.0 saves in your small business. It generates P&L, Balance Sheet, A/R, A/P, Payroll, Job/Project reports and more. No wonder more than half of Quicken owners use it for business.

Satisfaction guaranteed.

We offer free unlimited help by phone. And if you're not completely satisfied, you can return Quicken within 60 days for a full refund – no questions asked.

So you've got nothing to lose, but so much to gain. Try it out!

1990 & 1991 MacWorld World Class Award

1990 MacUser Editor's Choice Award

1989 & 1990 MacUser Highest Rating

1-800-624-8742

Call toll-free 24 hours a day, 7 days a week, U.S. and Canada.

©Intuit, Inc. 1991



❑ Yes! Send me my Quicken 3.0 for the Macintosh for just $69.95. If I'm not completely satisfied, I can return it for a full refund. Free air shipping within the U.S.

❑ Yes! Send me my upgrade version of Quicken 3.0 for the Macintosh for just $29.95 (includes shipping). I have enclosed the title page from my Quicken Users Manual. **No photocopies, please.** Allow 2-3 weeks for delivery in the U.S., slightly longer in Canada.

CA & MN residents add sales tax. International shipping extra.

Name_____

Address_____

City_____ State____ Zip ____

Day Phone_____

❑ Check enclosed (no COD or purchase orders)

❑ Visa ❑ MasterCard ❑ AmEx ❑ Discover

Card#_____

Exp.Date_____

Signature_____

Mail to:

Intuit

P.O. Box 3014
Menlo Park, CA 94026
Or call 1-800-624-8742

Apple® Macintosh® System 7 Compatible

Equipment required: Any Macintosh computer with at least 1 megabyte of RAM, one or more floppy disk drives, or a hard disk, and system 4.1 or later (System 7 compatible). Guaranteed to work with all printers and monitors or your money back. Not copy protected. Free unlimited technical support.

Ad Code: MUO2E

Two Price Points.

1. "At $895, Ehman's Two-Page Monochrome display is an excellent buy."
MACWORLD, MAY 1991

2. "If you want a full-page display, we recommend the Ehman: it's rare to find such high quality and low price ($495) in the same monitor."
MACWORLD, MAY 1991



Since 1985, Ehman has been a leader in providing high quality, affordable peripherals to the Macintosh market. The 19" monochrome monitor you see on the left, for example, costs just $895, and comes with a two year warranty on the monitor.

Further proof lies in our full page monitor, or the brand new, 14" crystal-clear color monitor. Or any of our other monitors, including 19" gray scale and 8 and 24 bit high resolution Trinitron color units.

For some of the highest quality peripherals around, as well as some of the lowest prices, we think you should consider Ehman. As evidenced by the comments above, others do, too.

For more information on our products, or to place an order, fax 307-789-4656 or call toll free 1-800-257-1666.

CALL FOR OUR MACWORLD SHOW SPECIALS

Ehman
Quality Macintosh Peripherals Since 1985

CIRCLE 172 ON READER SERVICE CARD.

An Electronic Collage

Image-editing and painting programs can take the drudgery out of creating composite illustrations.

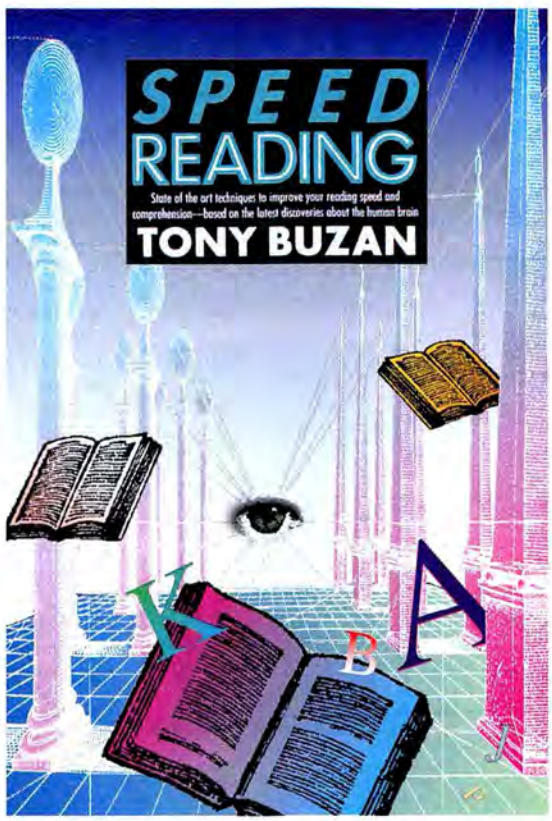
By Janet Ashford

The art of collage has traditionally required a steady hand and a sharp X-acto knife. But today's graphics programs provide a variety of selection, masking, and manipulation tools that greatly simplify the process of assembling diverse graphics into a single illustration. You can create interesting, imaginative collages, using tools such as ColorStudio, Digital Darkroom, Photoshop, PixelPaint Professional, and Studio/8.

New York-based artist Marc Yankus has created traditional collage illustrations for clients such as *Time*, *Newsweek*, and *Vogue* for more than ten years. His methods required careful knife work and the time-consuming use of colored pencils and rubdown film to add color to black-and-white images.

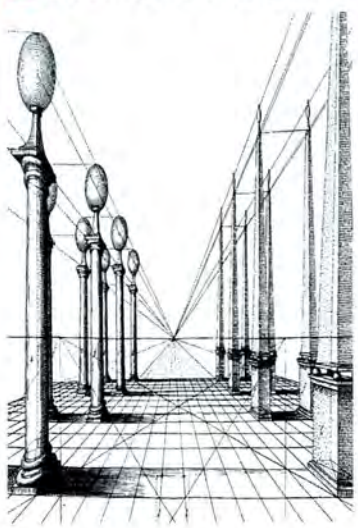
In 1990 Yankus discovered Photoshop, bought a Mac IIcx, and never looked back. He now scans old-fashioned images, resizes and distorts them, and plays with their positioning. Applying solid and graduated color to his base art is quick and easy, with no limitation on the number of colors he can choose. Once the collages are complete, Yankus usually outputs the artwork as 4-x-5-inch transparencies.

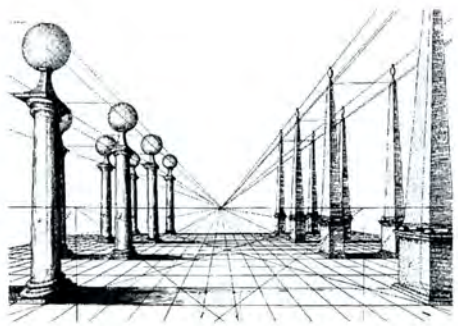
Graphic designer Janet Ashford is a contributing editor to *Step-by-Step Electronic Design.*



Marc Yankus uses Photoshop to create distinctive photo collages such as this book cover, part of a psychology series published by Viking Penguin. For this project, he started with scans of 18th- and 19th-century engravings, distorted some of them, and added solid and graduated color. The title type was added mechanically by the art director.

1 Creating the Background





An 18th-century perspective drawing is scanned at 300 dpi (top). Yankus uses the Scale command to reduce the width of the image, squeezing it into a vertical format (left) that matches the proportions of the book cover.

2 Adding a Sky Gradation



The pencil tool is used to connect broken lines and close gaps in the scanned image. This allows Yankus to select areas of the sky with the magic-wand tool without also picking up white areas inside the columns. By holding down the Shift key while making selections, he groups the sky areas into a single selection. The selected sky area is given a linear graduated fill that ranges from blue to white.

3 Making a Mask

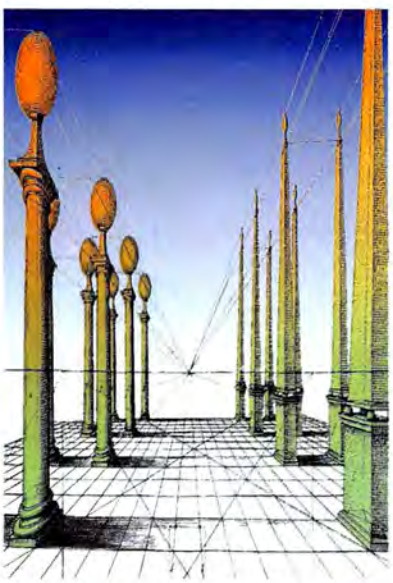


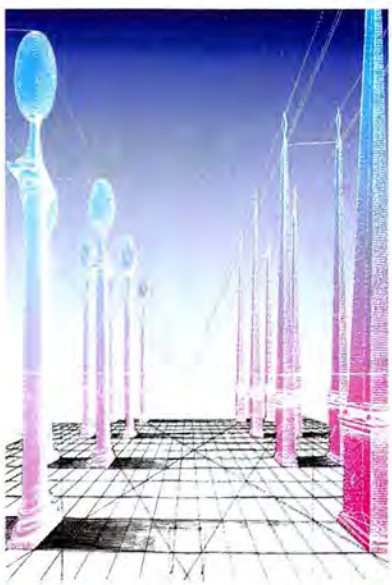


Top: Yankus uses the Save Selection command to send the selected sky area to an alpha channel. This creates a mask where only the selected area (shown in white) is affected by editing changes. All other parts of the image are protected by a black mask. Yankus wants to add a purple-to-blue gradation to the columns and to reverse their lines from black to white. There's no easy way to select all the lines, so they must be manipulated as part of the larger selection. Reversing the lines' color thus means inverting the colors of the entire selected area. To ensure that the final colors are the ones he wants, Yankus executes a complex series of steps.

Bottom: First, he modifies the mask to protect everything except the columns and lines. To do this, the Inverse command is used to switch the selection area from the sky to the rest of the image. Then the lasso tool is used to select all the ground areas. By holding down the Command key while making selections, Yankus automatically subtracts these areas from the total selection. Finally, only the columns and lines are left. Using the Invert command, he swaps the black and white areas of the mask. Everything in the image is now masked except for the columns and lines.

4 Adding Color to the Columns





Left: Using the Load Selection command, Yankus applies the mask to the color image. He then applies an orange-to-green gradation to the columns; these colors are opposite in hue from the ones he ultimately wants. Darken Only mode is selected in the Paste Controls dialog box, so that only pixels lighter than the blend colors are altered and the black lines are left untouched.

Right: With the columns still selected, Yankus uses the Invert command to simultaneously reverse the colors of the gradation and the black lines. He has now achieved the intended effect: purple-to-blue columns with white lines.

5 Choosing the Colors





Using the same technique, Yankus adds a blue-to-green gradation to the ground area. But how does he know which colors will reverse to produce the correct gradation, both here and in Figure 4? Yankus first fills the selected area with the blue/green blend he wants and inverts the color; the ground becomes gold/purple with white lines. The dropper tool is used to turn the beginning and end colors of the blend into the foreground and background colors. He then inverts the colors again, deletes the blue/green blend, and replaces it with a new one, using the gold foreground and purple background colors (top). He once more inverts the colors of the selected shapes, producing a blue-to-green blend with white lines (bottom).

6 Adding an Eye



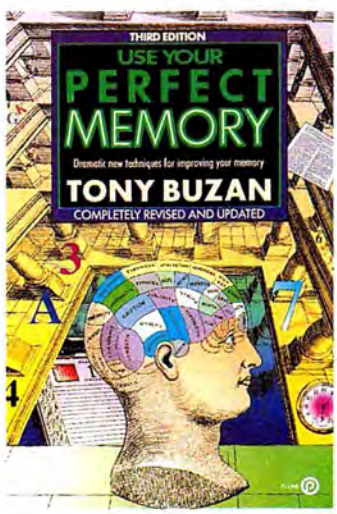
A scanned detail of a woman's face is converted to RGB format for editing. Yankus paints the iris green, again using Darken Only mode to prevent the black areas from being affected (top). The eye is selected with the elliptical marquee tool, cut, and pasted into the color image, where it's positioned over the vanishing point of the perspective lines (bottom). To help the eye blend in with its new surroundings, a Feather Radius of 15 is specified for the marquee tool.

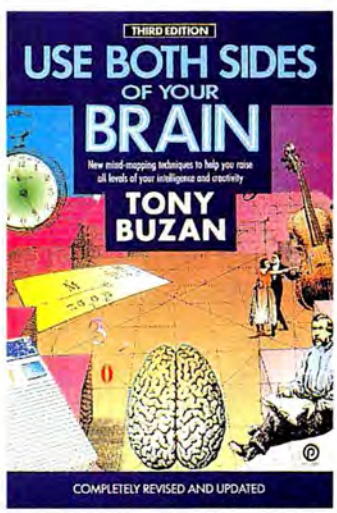
7 Adding Books and Type



Yankus scans two books and creates three open-book images, each filled with a different color gradation. Using the type tool with the anti-aliasing option, he creates some large colored letters and rotates them slightly. To make the right-hand book and the letter *A* appear to be partially behind columns, Yankus erases the "hidden" parts while holding down the Option key. This activates the Revert option of the eraser tool so that it erases back to the last saved version of the image.

8 The Rest of the Series





Using the techniques described here, Yankus also created photo collages for the covers of two other books in the Viking Penguin psychology series.

Support A Family Of Eight For $449.

Installing 10BASE-T Ethernet has never been easier or more affordable, thanks to the new eight-port DaynaSTAR MiniHub™ from Dayna. A true breakthrough in price as well as technology, the DaynaSTAR MiniHub connects up to eight Macintosh, IBM-compatible or other computers, servers and printers over 10BASE-T twisted-pair wiring. At a new industry low price of just $56 per node. That's less than half the price some of our competitors will charge you. The MiniHub can support a network of eight devices entirely on its own, or it can be connected to other hubs over 10BASE-T wiring to create larger networks. An additional BNC port allows the MiniHub to be connected to a thin Ethernet backbone if needed. All important network protocols and operating systems are supported, including AppleShare, NetWare, TOPS for Mac and DOS, Banyan VINES, PhoneNET Talk and DECnet. With the introduction of the MiniHub, Dayna now offers the most complete line of any vendor of Macintosh Ethernet products. Including our full line of DaynaPORT adapters and our award-winning EtherPrint for printers, netmodems and other LocalTalk peripherals. So when you're looking for high-quality, affordable products to put your Macintoshes on Ethernet, let our family support yours. For information on the DaynaSTAR MiniHub or any of our Ethernet products, call 801-531-0600 today. We'll give you all the support your family needs.



Hubs	*Cost Per Node*	*Ports*	*Retail Price*
DaynaSTAR MiniHub	*$56.*	*8*	*$449.*
Asanté 10T Hub	*$83.*	*12*	*$999.*
Shiva Hublet	*$99.*	*4*	*$399.*
Farallon StarController EN	*$158.*	*12*	*$1895.*

Dayna Proudly Supports

MACINTOSH CONSULTANTS NETWORK

"Excellence in Microcomputer Consulting"

209-545-0569

Dayna®

We Connect People And The Computers They Use.℠

DaynaSTAR MiniHub, DaynaPORT and EtherPrint are trademarks of Dayn
Communications, Inc. All other product names are the trademarks of their respective hol
© 1992 Dayna Communications, Inc., 50 South Main, 5th Floor, Salt Lake City, Utah 84
FAX: (801) 359-9135.

CIRCLE 133 ON READER SERVICE CARD.



What do you get when you cross a Cisco high-performance router with a SynOptics hub? A rub. Or, more precisely, a RubSystem. Designed for networks of 40,000 to 50,000 users, the RubSystem will integrate router, hub, and network-management functions. The product, once it's real, will be comarketed by Cisco Systems ([415] 326-1941) and SynOptics ([408] 988-2400).

By Henry Bortman

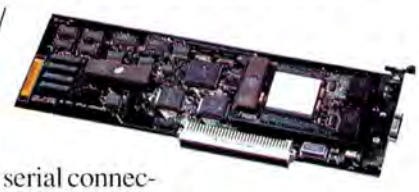


External Ethernet: So just exactly how *are* you going to connect that new PowerBook to your Ethernet network? Using Dayna's new DaynaPORT SCSI/Link ($399), a SCSI-to-Ethernet adapter, is one way. The SCSI/Link supports thin-coaxial connections; the SCSI/Link-T supports twisted-pair. * Asanté's new EN/SC 10T ($399) provides the same service for 10BASE-T connections. The EN/SC ($499) supports thick-coax, thin-coax, *and* 10BASE-T connections. * Nuvotech's NuvoLink SC ($549) and Compatible Systems' Ether+ ($495) also provide solutions.

File service: Finally, Banyan Systems ([508] 898-1000) has added Mac support to version 5.0 of VINES. Prices for the base product (sans Mac support) range from $2,495 for ten users to $7,495 for an unlimited number; $13,995 gets you support for multiprocessor server platforms. For VINES Option for Macintosh, add $1,995; for VINES Mail for Macintosh, add $895. * Microsoft wants in on the Mac action too. LAN Manager 2.1 supports Macs as well as DOS, Windows, and OS/2 clients. Prices for the server software: $1,995 for ten users, $995 for each additional ten; $995 per server for LAN Manager Services for Macintosh. * Alisa has ported its AlisaTalk server software, formerly available only on VMS, to three UNIX platforms: Sun UNIX, DEC Ultrix, and IBM AIX. Prices for an unlimited number of users: $4,595 on Sun SPARCstations; $5,595 on Sun SPARCservers, Digital DECstations/servers, and IBM RS/6000s. VINES 5.0, AlisaTalk for UNIX, and LAN Manager 2.1 should all be shipping as you read this. * IBM will support AppleShare connectivity on its OS/2 LAN Server too — eventually. But Big Blue won't say when or reveal how much it will cost.

BANYAN®

The alliance: Meanwhile, Apple has licensed the blue boys' token-ring chips for use in its new Token Ring 4/16 NB Card ($999). * And if you thought A/UX would fade into the woodwork with the Apple/IBM announcement of PowerOpen, check out A/UX 3.0. It offers full System 7 functionality, including QuickTime, and runs on Mac Quadras (A/UX 2.1 doesn't). Also new in 3.0: support for serial connections, via CSL/IP and SL/IP, and UUCP file transfer. Available in early 1992.



Remote AppleTalk: Several vendors have promised that their products will support the ARAP (AppleTalk Remote Access Protocol), starting in early 1992. TransWare ([415] 968-8888) will implement ARAP on its three-port SerialWay dial-in servers, Cisco will do likewise on its line of terminal servers, and Cayman Systems ([617] 494-1999) will offer it on an as-yet-unspecified remote-access-server product.

PAST PRESENT FUTURE



© 1991 Asanté Technologies, Inc. All brand names and products are trademarks or registered trademarks of their respective holders.

Asanté. The most advanced Macintosh networking company, time after time after time.

Introducing Asanté's new EN/SC Ethernet SCSI device.

Now you can connect any Macintosh® to any Ethernet™ media, any time. The new Asanté EN/SC connects to the Mac's SCSI port and includes ports for all three Ethernet media (thick, thin and 10BaseT). So you don't need a Mac with an internal slot to run Ethernet—good news for anyone with a Mac Classic® or Mac Portable.



[The EN/SC SCSI can handle all three types of Ethernet media—thick, thin and 10BaseT.]



[It also provides two SCSI connectors for simple, daisy-chain interconnection.]

And it gives you the option of networking even when your slots are full or you want to save your open slots for the future—good news for everyone.

Ethernet connectivity through the Mac's SCSI port. Single product supports all three Ethernet media. Pass-thru SCSI port and an external SCSI ID switch. Diagnostic LEDs.

With ports for all three Ethernet media, and two SCSI ports for simple daisy-chain connections, the new EN/SC is flexible enough to grow with your business. In fact, it's all you'll ever need. Because changing with the times is as easy as changing from one port to another. And if your Macs change location, our SCSI device follows right along. It's just the latest example of networking leadership from the number one networking company offering a full line of Ethernet cards for the full line of Macintoshes.

ASANTÉ

ALL THE RIGHT CONNECTIONS™

Asanté.™ We're compatible. Flexible. And, above all, reliable. In fact, every one of our products is backed by a 5-year, hassle-free warranty. So whichever Macintosh you want to network, and whenever you plan to do it, make all the right connections with Asanté.

SYSTEM 7.0 COMPATIBLE 7.0 digital™ Novell Labs Tested & Approved™

[All our products are 100% compatible with Apple System 7.0. They are Novell Labs Tested and Approved and qualified by Digital Equipment Corp.]

Give us a call today at 1.800.662.9686 to find out more about our complete family of products.

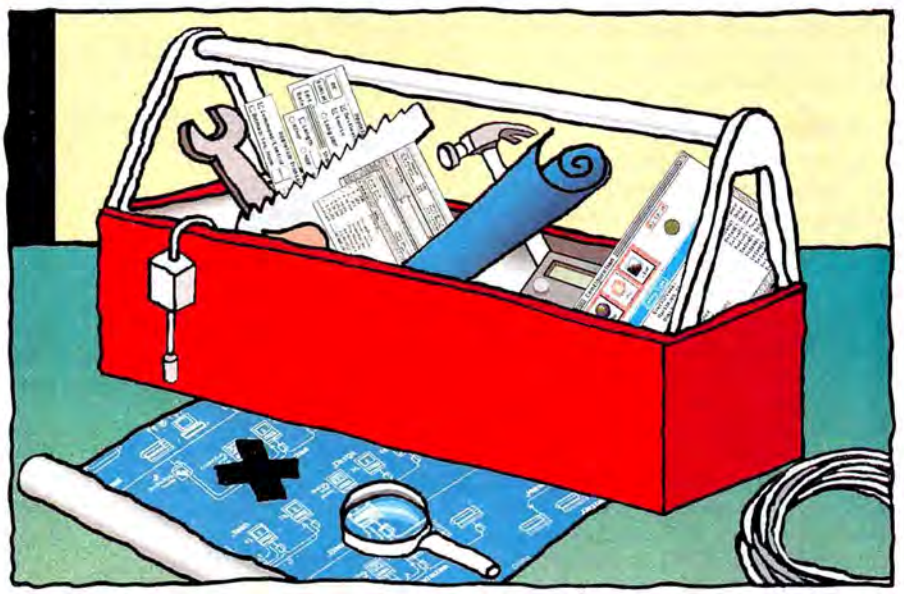
Resellers: Asanté products are available from distributors Tech Data, Ingram Micro, and Merisel/Macamerica.

[Asanté Technologies, 404 Tasman Dr., Sunnyvale, CA 94089]

Tools of the Trade

A new batch of traffic and protocol analyzers makes network maintenance a lot easier for beginners and pros alike.

By John Battelle



Keeping your network healthy has never been easy, and in the past, the software tools available to help you analyze and isolate network problems didn't make the job any more enjoyable. But weary network administrators can take heart: Well-designed management software has recently been released, with new products ranging from applications that decipher the data whizzing across your network to mapping, updating, and inventory programs that help keep your network shipshape.

In this article, we look at two types of complementary tools that help you pinpoint and solve problems. *Traffic analyzers* — which include Apple's entry-level Inter•Poll and Farallon's full-featured TrafficWatch II — keep track of the transmissions that travel across your network every time two devices (such as a Mac and a printer) communicate. They can tell which devices are generating traffic, how much traffic is being generated, and when traffic is occurring during the day.

Protocol analyzers, such as AG Group's LocalPeek and EtherPeek and Neon Software's NetMinder products, take an in-depth look at what's happening on a network. Rather than just looking at the traffic, they look at the data "packets" that make up the traffic. (A packet is a group of signals traveling on the network that includes user information, the control and addressing information needed to send the packet to its correct destination, and the data being sent.) By decoding the information within the packets, a protocol analyzer can pinpoint trouble down to the byte level. Good protocol analyzers also let you view where packets came from, where they are headed, and how many of each type there are. You can use the information they provide to redesign your network and make it more efficient. But beware: To use protocol analyzers, you need a good understanding of Mac networking and of the AppleTalk protocol stack in particular. Apple's *Inside AppleTalk* (Reading, Massachusetts: Addison-Wesley, 1990) is a good reference to have on hand.

To round out your network-management tool kit, consider ancillary tools such as mapping, monitoring, and inventory programs. For more on these, see the "From Mapping to Monitoring" sidebar and "Maximum Mac Management," October '91, page 183.

Inter•Poll

The best-known — and most maligned — LocalTalk-administration software is Apple's Inter•Poll ($129), which was designed for small (7 to 32 node) networks. Inter•Poll creates a logical map of the network that shows how many packets are being sent, where they're going, and where they're from. It displays lists of network zones and active network devices and provides an echo test that lets you test the integrity of the connections among those devices within a particular zone and allows you to pinpoint exact locations of network breakdowns. When a special INIT called the

Responder is installed on Macs on a network, Inter•Poll can query workstations for information such as the version of system software currently running.

Although Apple has not upgraded Inter•Poll since 1989, its excellent manual is worth getting, especially if you're new to network management.

TrafficWatch II

Inter•Poll is pretty limited in what it can do, and it doesn't give you much help in interpreting the information it gathers. A far more sophisticated tool is Farallon Computing's TrafficWatch II ($895), which monitors network traffic on both Ethernet and LocalTalk networks. TrafficWatch II captures and presents packet data graphically, with charts showing protocol use, bandwidth utilization, and types of errors.

TrafficWatch II lets you see when packets were sent and shows the send-and-receive counts for each specific node address, including broadcast. Like Inter•Poll, TrafficWatch II uses the Responder INIT to gather device-type and other system information, which you can save as text for analysis in a database or spreadsheet program (see Figure 1). To further help you analyze the information gathered, TrafficWatch II includes an Excel macro called TrafficChart.

TrafficWatch II is useful for monitoring your network, letting you know what devices are out there, what traffic problems are developing, and how you can revamp your network. This is all the help many administrators need. However, if the only way to solve your network's problems is by delving beneath the surface into the contents of the packets themselves — to find a bad connection or bad software, for example — you're going to need a protocol analyzer.

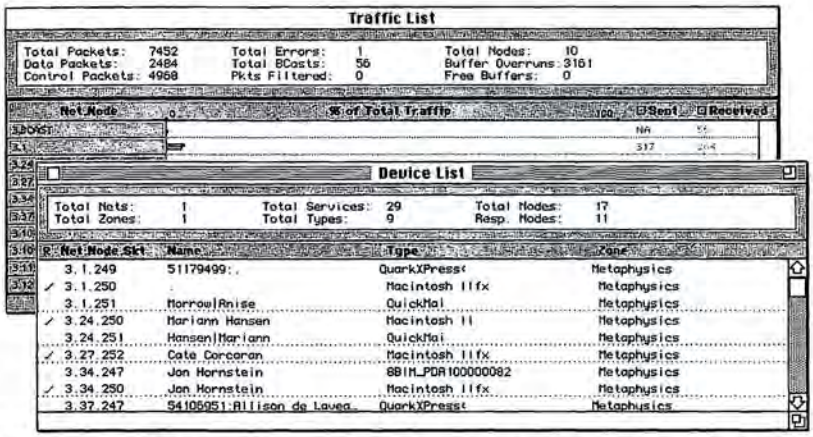


Figure 1: TrafficWatch II provides a Device List (front) based on information from the Macs on a network on which the Responder INIT has been installed. It also lets you graph interpretations of traffic patterns in several ways, such as traffic sent and received (back).

TalkStat and TalkSpy

Distributed Technologies makes a program that fills the gap between traffic and protocol analyzers. The $495 package includes two complementary products, TalkStat and TalkSpy, that are adjuncts to DTC's integrated administration-software package, TalkManage, described in the "From Mapping to Monitoring" sidebar. (For the features of Inter•Poll, TrafficWatch II, and DTC's products, see Table 1.) DTC's package looks at traffic on LocalTalk segments and offers two levels of analysis. TalkStat looks at network traffic and graphically displays network performance statistics. It also shows network bandwidth use, protocol use, and the number of packet errors. TalkSpy lets you trace problems down to the packet level: It identifies and traces packet errors on the network, gives information on packet headers (essentially the packet's instruction set), and counts three types of errors: cyclical-redundancy check (CRC), overrun, and NoAbort.

We had a couple of problems with TalkStat and TalkSpy. First, their non-intuitive interfaces may make them difficult for neophyte network managers to master (a problem compounded by the skimpy and unindexed manual). Second, the company has a frustrating copy-protection policy: You can make only two copies of the programs from the master disks. If you want to run TalkSpy from a floppy disk — to run tests from a machine on another LocalTalk segment, for example (a common network-administrator

Are We Managing Networks Yet?

Although several network-management packages are now available for AppleTalk networks, we're still not *there* yet. In fact, we're not even close. But before the angry letters start pouring in, let me explain.

You take the Mac. It's got a great graphical user interface. It's got a great built-in network, AppleTalk. You think, "Gee, someone should be able to put these two elements together and come up with great software for managing AppleTalk networks." But for some reason, it hasn't happened.

Why? Because Apple has been asleep at the wheel. AppleTalk is a very elegant system of network protocols, but it has no management protocols. In the absence of a standard from Apple, network hardware and software vendors have had to devise proprietary protocols to solve their network-management problems.

The result? Network-management applications are severely restricted in the range of devices they can support. To create RouterCheck, for example, Neon Software had to write custom code for each type of router it supports. And there *still* isn't an application that can manage different vendors' hubs. This is an absurd state of affairs.

After numerous customer complaints, Apple finally got around to working on AMP (AppleTalk Management Protocol) in the late 1980s. Then, just when AMP was almost ready, Apple changed its mind and decided to go with the more-standard SNMP (Simple Network Management Protocol).

This was actually a good move. In fact, it was a response to customer demand. Customers wanted a protocol that would let them manage Macs and AppleTalk network devices along with other computing and network devices. Macs and AppleTalk no longer live in isolated network worlds of their own, especially at large companies, and SNMP addresses this reality better than AMP would have. Sure, it's a couple of years too late, but let's hope that it's just the beginning.

— Henry Bortman

REBATES NOW!

JUST RIGHT

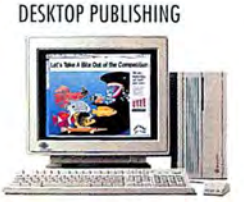
OFFICE AUTOMATION



BUSINESS PRODUCTIVITY



DESKTOP PUBLISHING



COMPUTER-AIDED DESIGN





16-INCH DISPLAYS FOR THE MAC QUADRA... JUST RIGHT FOR THE ENTIRE OFFICE

Introducing the only 16-inch displays compatible with the new Macintosh Quadra 700 and 900, E-Machines ColorPage E16 and ColorPage T16. Just plug-n-play for affordable full-page color up to 24-bits. No interface card necessary! Need more room to work with large spreadsheets, desktop publishing layouts or multimedia applications? E-Machines 16-inch color solutions are just right for the Mac IIci, IIsi, LC – The Entire Office.

HIGH PERFORMANCE INTERFACE CARDS



DOUBLE COLOR	8-BIT UP TO 832 x 624
FUTURA EX	24-BIT UP TO 640 x 480
FUTURA SX	24-BIT UP TO 832 x 624
FUTURA MX	24-BIT UP TO 1024 x 768

Add an E-Machines Futura interface card and turn your Mac into a high performance, accelerated color machine complete with pan and zoom, virtual screens and video output capabilities. Go ahead, experience high performance color and see how affordable 16-inch color solutions have become.



ColorPage™ T16

E-MACHINES
E-Magination at work™

For your nearest dealer, call or write.
9305 SW Gemini Drive, Beaverton, OR 97005
Fax: 503-641-0946

1-800-344-7274

CIRCLE 151 ON READER SERVICE CARD.

Copyright © 1991 E-Machines. ColorPage, Futura is a trademark of E-Machines. Apple, Mac Quadra are trademarks of Apple Computer.

WE'RE LOOKING FOR EVIDENCE OF INTELLIGENT LIFE.

If you have evidence of intelligence test scores which put you in the top 2% of the population—for example, 1250 or better on the SAT*—then you already qualify to join Mensa. We also accept the GRE (1250), Miller Analogies (66), Stanford Binet (132) and other tests (scores must be accompanied by a $15 evaluation fee). Send in this coupon for more information.

Name _____

Address _____

City/State/Zip _____

mensa
The High IQ Society.

Send to: MENSA, Dept. MU22, 2626 East 14th Street, Brooklyn, NY 11235-3992
Or call: 1-800-66MENSA

*1300, if you took the test prior to September 1977.

CIRCLE 30 ON READER SERVICE CARD.

PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

For Fast Service Call Toll Free, 1-800-825-6690

Magazine Binders
Hold your issues on individual snap-on rods. $9.95 each. 3 for $27.95. 6 for $52.95.



Open Back Cases
Store your copies for individual reference. $7.95 each. 3 for $21.95. 6 for $39.95.



MacUser
c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134

Please send me: Quantity_____ ☐ Binders ☐ Cases
Payment by check or money order enclosed for $_____.*
Add $1 per case/binder for postage and handling. (Outside USA, add $2.50 per case/binder ordered. US Currency only.)
Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order $15)
Card No._____ Exp. Date_____
Name_____
Street Address_____
Sorry we cannot ship to P.O. Boxes. Thank you.
City_____ State_____ Zip_____
*PA residents add 6% sales tax.

task) — you must have the master disk to verify that copy protection has not been violated. Even when we inserted the master disk, though, the program didn't cooperate when we tried to boot from a floppy.

These problems aside, the TalkManage package works well. However, if you want the added features of filtering (the ability to collect packets based on specific criteria), triggering (the ability to time data collection based on a specific event), and packet decoding (the ability to view the data within a packet), you'll need more-sophisticated tools.

Protocol Analyzers

For LocalTalk networks, *more sophisticated* means AG Group's LocalPeek or Neon Software's NetMinder LocalTalk. For Ethernet it means AG's EtherPeek or Neon's NetMinder Ethernet. These full-featured protocol analyzers collect and analyze a wealth of information and have much in common. (For features of these products, see Table 2.)

Each program displays a main window that prompts you to begin data collection and then displays a list of the packets received. Packets are stored in a memory buffer that expands, depending on available RAM. Double-clicking on the packet line brings up a window with more-detailed information on the contents of the header and the packet. All these programs take over the machine you're running the software on, so you don't have access to LocalTalk or Ethernet services while running the programs (unless you have a

From Mapping to Monitoring

It takes more than just traffic and packet analyzers to manage a network. Several recently introduced products focus on other less specialized aspects of network administration such as router management and network mapping.

NetAtlas. This program from Farallon Computing provides a logical map of your entire internet (by network address, not physical location) along with lists of each node's type (AppleShare client or Mac IIci, for instance), zone location, and Responder information. You can print this information or save it for further analysis, and you can save the map as a PICT file. NetAtlas also lets you specify various types of devices to search for, such as workstations or printers. Farallon Computing, 2000 Powell Street, Emeryville, CA 94608; (510) 596-9100. $895.

NetMap. This mapping program works as a DA and isn't as full-featured as NetAtlas. NetMap can search for specific zones and addresses, and it provides a list of device types and their logical location on the network. It doesn't offer Responder information or a graphical map of the network, however. Advanced Electronic Support Products, Inc., 1810 N.E. 144th Street, North Miami, FL 33181; (800) 446-2377 or (305) 944-7710. $99.

netOctopus. This integrated administration tool from MacVONK provides several management tools in one package. Billed as a competitor to Status•Mac, from Pharos Technologies, and GraceLAN, from Technology Works (see "Maximum Mac Management," October '91, page 183), netOctopus gives you a picture of your user's boot disk. You install an INIT/control panel on each networked machine, and when netOctopus polls the machine, the INIT/control panel provides information about CPU and monitor type, applications, INITs and control panels, and even specific documents. Users can decide what the administrator may see.

NetOctopus can also install or update applications across the network. Several other programs—namely VersionTerritory, from SoftWriters; NetDistributor, from Trik, Inc.; GraceLAN Update Manager, from Technology Works; and Personal*STATUS, from Pharos — also offer this capability. MacVONK, 313 Iona Avenue, Narberth, PA 19072; (215) 660-0606. $645.

Net Watchman. This comprehensive monitoring and alarms program from AG Group has a colorful, icon-based interface that provides a map of the network. You can configure the program to monitor your network in the background and alert you to problems such as when a server crashes, a bridge fails, or a printer goes down.

Like most other monitoring programs, Net Watchman sends a request to all AppleTalk-network devices for a response packet and collects all the responses as a network snapshot that shows services (such as E-mail and file servers), nodes, and zones. You can save the device and zone lists as text files for use in network planning and analysis. AG Group, 2540 Camino Diablo, Walnut Creek, CA 94596; (510) 937-7900. $195.

RouterCheck. Geared specifically to managing routers, Neon Software's RouterCheck creates a list of all the routers on a network, including information such as the router's name, network location, and node number. RouterCheck can also display routing-table information (crucial lists of

second Ethernet card installed). As similar as these programs are on the surface, they differ in their esoteric features such as the ability to create "echo" packets and the flexibility of their filtering feature sets.

LocalPeek

LocalPeek, which AG Group sells either separately for $495 or as part of its $1,295 NetPatrol Pack (which includes LocalPeek, EtherPeek, and Net Watchman), is the slickest of the LocalTalk tools we tested. It has an easy-to-use interface, and its use of color and graphs is quite effective. But for an experienced network administrator, the program may be a little *too* slick, with several unnecessary bells and whistles that occasionally detract from its actual purpose.

LocalPeek displays packet data in a real-time collection window. If you double-click on a packet, you'll be able to see the data inside, broken down by protocol layer. You can cut and paste this data into another program (a spreadsheet or database program, for example), a feature that's important if you're creating reports on the information you're collecting. This ability to transfer information is not supported by most other programs (although most do let you save packet information as text files).

LocalPeek's filtering options are extensive — for example, it allows for several levels of filtering based on DDP (Datagram Delivery Protocol) subcategories such as RTMP (Router Table Management Protocol) and ADSP (AppleTalk Data Stream

what devices the router recognizes and trades information with). Depending on the type of router, you can request the router's serial number, software version, and some packet statistics, such as error counts and the number of packets routed. You can display these statistics graphically or export them as text for further analysis in a spreadsheet or database program.

You can also use RouterCheck to verify that a particular router is properly configured and is aware of the other routers on the network; if there's a problem, it will suggest solutions. Neon Software, 1009 Oak Hill Road, Suite 203, Lafayette, CA 94549; (510) 283-9771. $649.

TalkManage. Instead of focusing on one aspect of management, Distributed Technologies' TalkManage offers several different features. Its packet-analysis modules (TalkStat and TalkSpy) are discussed in the main article, and TalkManage also includes a slick router-monitoring function, a messaging system, an alarms function, Responder information, and mapping. These features are displayed on a "dashboard" console for easy network monitoring (see Figure A). Although TalkManage's technology appears to be solid and its feature list comprehensive, the product suffers from a sometimes confusing interface and poor documentation. Distributed Technologies Corp., 275 Wyman Street, Waltham, MA 02154; (617) 684-0060. $695.

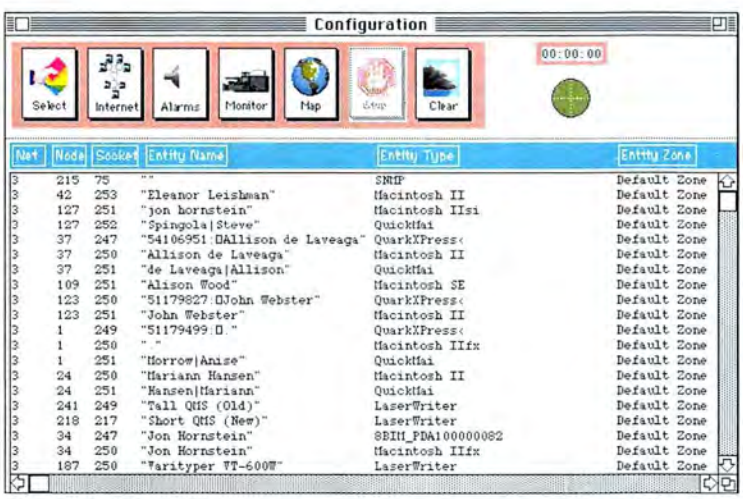


Figure A: TalkManage takes an integrated approach to management, providing icons for various administrative functions, such as monitoring and alarms.

From
Dull
to
Dazzling
with
Effects
SPECIALIST™

...our dynamic effects will add punch and excitement to any document or project.



System 7 Compatible

Visit us at MacWorld
Booth 407, Moscone Center

Includes these great features:

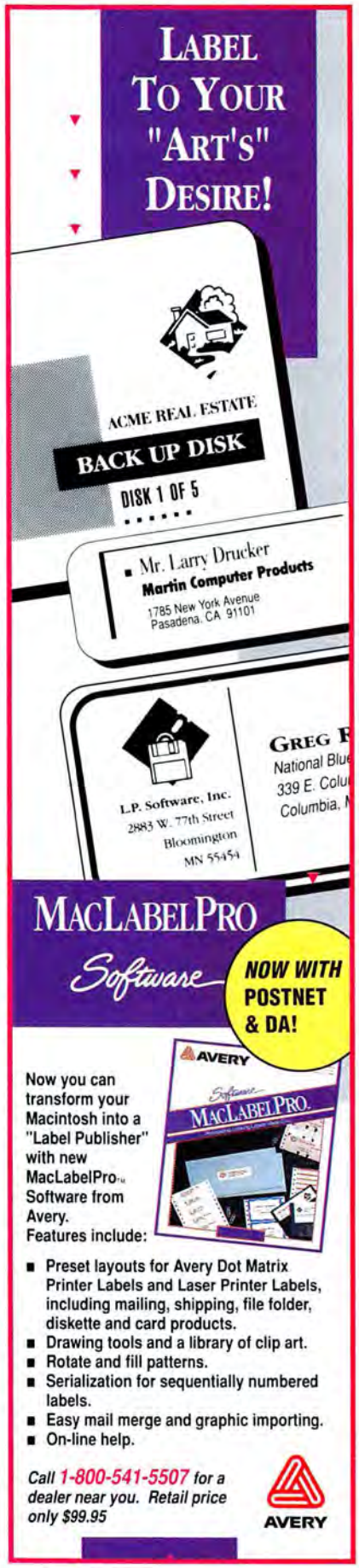
- Use any font in your system, PostScript™ or non-PostScript
- 120 different effects, each with its own modifiers
- Easy to learn...easy to use
- Imports and exports PICT and EPSF files
- WYSIWYG
- Kerning, scaling, color and background generator
- Rotating and skewing
- Rulers, group and ungroup

FREE Adobe TypeManager™ and 13 Adobe® fonts with purchase

Call now for free Demo Disk

POSTCRAFT
INTERNATIONAL INC.
27811 Avenue Hopkins, Suite 6
Valencia, CA 91355 • (805) 257-1797

CIRCLE 140 ON READER SERVICE CARD.



CIRCLE 56 ON READER SERVICE CARD.

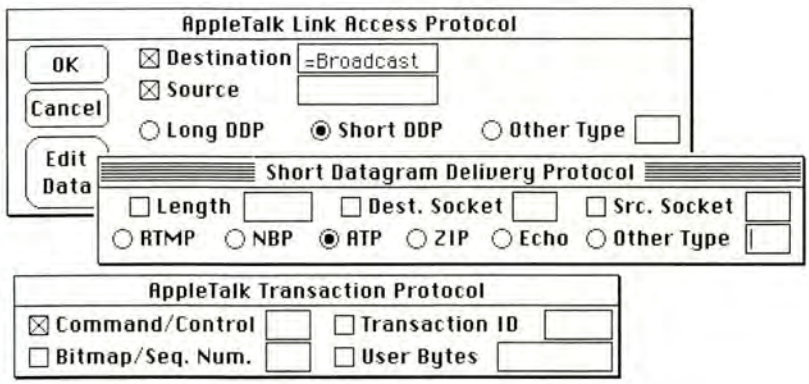


Figure 2: NetMinder LocalTalk has an intuitive filtering feature set: It leads you through layers of filtering via successive windows.

Protocol). It also allows filtering by offset, which lets you filter on a given byte within a packet so you can zero in on specific information, and filtering based on address, which lets you isolate traffic by node (for example, all traffic going to a particular printer).

Another plus is that the program decodes the entire AppleTalk stack as well as MacIP (Macintosh Internet Protocol) and SNMP (Simple Network Management Protocol). The TCP/IP protocol SNMP is fast becoming the standard network-management protocol on the Mac (for more on SNMP, see the "Are We Managing Networks Yet?" sidebar).

LocalPeek has a slew of useful features. It can transmit echo packets to test responses from other network devices as well as create network traffic. You can flag problems with specific colors — useful for a large network where you have a lot of errors to sift through. And captured data can be displayed in real time in four types of color bar graphs: source address, destination address, node, and protocol type. LocalPeek also lets you set the amount of disk space any one capture session will take, so you can't accidentally fill your hard disk with unneeded packet data. The manual is well designed and complete, but it lacks a glossary.

Among LocalPeek's "bells and whistles" that are of limited use are the program's comprehensive set of alarms. Their implementation is limited — you can access the Traffic Alarms item from the Special menu only when you have a statistics window open, for instance. The feature is set up this way because the extra processing power for identifying packets that set off an alarm can noticeably slow down the program's performance. You can set audible (including verbal) and visual alarms that tell you when a new node or protocol is on the network, and you can add your own sounds to the program if you like.

An update to LocalPeek, which should be available when you read this, will improve LocalPeek's ability to generate traffic and will let you save various configurations. (AG's Ethernet product EtherPeek already includes this feature.)

NetMinder LocalTalk

LocalPeek's fiercest competitor is Neon Software's NetMinder LocalTalk ($395). Like LocalPeek, NetMinder supports color, packet analysis, protocol decoding, and sophisticated triggering and filtering, but its approach to the job is more utilitarian. The use of color is restrained, and NetMinder has fewer graphical-analysis windows than LocalPeek does. It doesn't support echo packets or traffic generation, data isn't displayed in real time as it comes in, and you can't cut and paste from a packet-decode window. But these aren't necessarily major oversights; rather, they appear to be deliberate decisions designed to make the program leaner and faster and therefore more appealing to experienced network administrators.

NetMinder LocalTalk has a more intuitive and effective filtering feature set than LocalPeek does. Successive windows guide you through the seven network layers of OSI (Open Systems Interconnection), a standard reference model for describing network protocols, as you define types of packets to be captured (see Figure 2). We were particularly impressed by the postfiltering feature, which allows you to run previously saved packet files through predefined filters so that you don't have

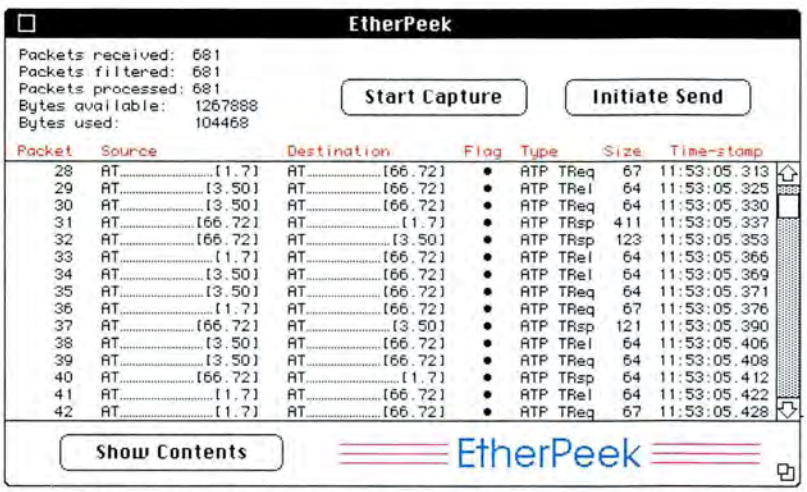


Figure 3: You can configure EtherPeek's main window to show as many as ten lines of individual packet information (here it's configured for one line). The Initiate Send button lets you create network traffic to test network conditions.

to recapture the information.

NetMinder has a few bells and whistles of its own, such as a trigger that includes a high-resolution clock, which lets you set timing in tens of microseconds (packets travel in millionths of a second). More useful is the ability to set triggers based on a predefined filter. You can also save multiple configuration files, a time-saver when you've expended a lot of effort to customize the program. You can, for example, create a configuration file that is specific to a particular network segment and place it on a disk with the program for on-the-spot troubleshooting.

NetMinder's on-line help is well constructed. Almost every one of its windows includes a help button, and when you click on it, you get useful and concise information. This more than makes up for the sometimes clumsy manual, with its incomplete glossary.

Unlike LocalPeek, NetMinder doesn't have configurable alarms. It does alert you, however, when the packet buffer is full or when a packet is dropped or missed. Neon takes a "circular" approach to its packet buffer: When the buffer is full, the program discards older packets as it collects new ones rather than discarding the entire buffer and starting anew. This is how high-end dedicated protocol analyzers deal with buffers.

For those who need protocol analyzers for both LocalTalk and Ethernet networks, Neon bundles NetMinder LocalTalk and NetMinder Ethernet as part of the $895 Network Management Series 1 package.

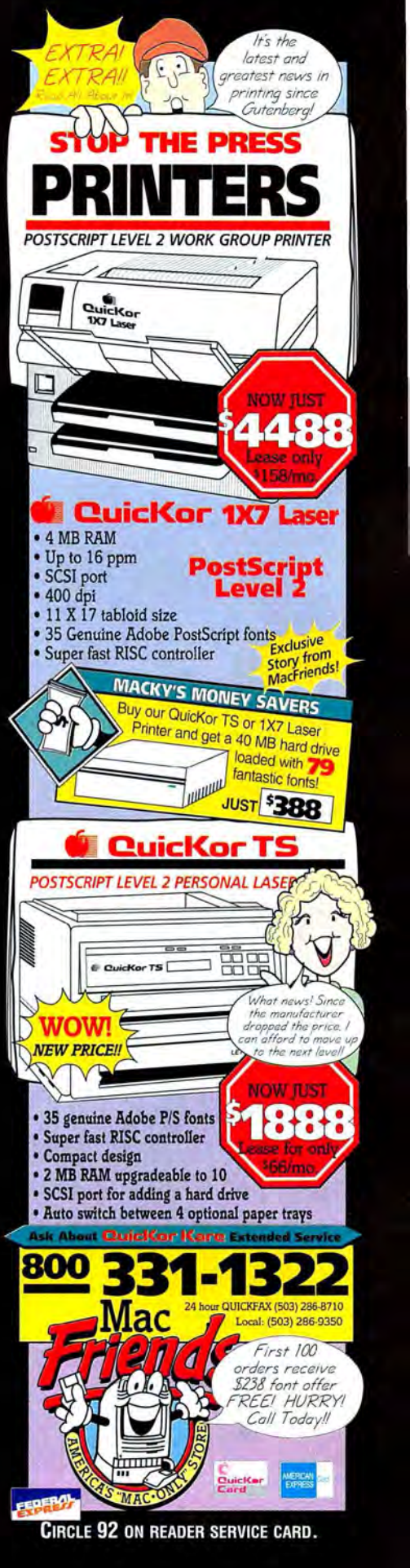
EtherPeek and NetMinder Ethernet

Neon Software and AG Group offered software Ethernet protocol analyzers long before they introduced their LocalTalk programs, and for good reason. Ethernet is a far more complex networking scheme, mainly because it can support many more devices on one network. Before these two products priced at much less than $1,000 hit the market, Ethernet analysis was the domain of specialty hardware with price tags reaching up to $20,000. Both Neon's NetMinder Ethernet ($495) and AG's EtherPeek ($795) are similar to their LocalTalk counterparts in terms of interface and feature sets.

In addition to AppleTalk, both programs analyze most protocols that run on top of Ethernet, such as IP, ARP, NetWare IPX, SPX, DECnet, XNS, and IPTalk. An elegant twist to EtherPeek is its modular design: When a new protocol appears, AG need provide only a new protocol-interface file (available on AppleLink or free on-disk to registered users) rather than a new version of the software.

Because it can generate traffic (see Figure 3), EtherPeek can create a load of nearly 6 megabits per second on Ethernet, enough to simulate close to full bandwidth utilization (although Ethernet's theoretical bandwidth is 10 megabits per second, throughput is rarely above 2 to 3 megabits per second).

EtherPeek includes an application called GetTheirAddress, which scans the network and loads user and service names



into its own table of AppleTalk devices. This means that you don't have to identify packets by their arcane internet address. Should new nodes appear, they're automatically added to the name table. NetMinder Ethernet includes Roll Call (called NetMinder Addresses in version 2.0), which does the same job as GetTheirAddress but doesn't map new nodes to the name table. NetMinder Ethernet also includes the NetMinder Diagnostics utility, which checks hardware issues such as whether the network is unterminated.

Although both programs support the major Ethernet cards on the market, EtherPeek's modular design accepts new card-interface files without requiring you to install a new version of the program. Before we could use NetMinder Ethernet, we had to wait to receive an updated version of the program that recognized the Ethernet card we were using. Both programs, however, support the simultaneous use of multiple Ethernet cards, a handy feature for those who want to retain their network services by using one card while monitoring the network with another.

Since this article was written, Neon has released version 2.0 of NetMinder Ethernet (it costs $100 more than version 1.2, the one we examined). The upgrade includes an Explain button, which enhances the already useful on-line help, real-time display, SNMP support, and enhanced mapping. AG has promised an update to EtherPeek in early '92.

The Bottom Line

The adage "for every job there is a tool" took a long time to come true in the field of Mac-network administration, but network managers finally can go to work with a complete toolbox. If you're running a simple network of 5 to 20 nodes and all you want to know is who's sending packets where, Apple's Inter•Poll may be all you need. Beginners will find its manual a good introduction to networking. For a more sophisticated tool to help you manage and analyze your LocalTalk or Ethernet network on a node-by-node level, Farallon's TrafficWatch II is a good choice.

For heavy-duty packet analysis in LocalTalk or Ethernet environments, it's a toss-up between Neon Software's and AG Group's products. AG Group's LocalPeek and EtherPeek have slick bells and whistles on the surface and solid administration and analysis tools at the core.

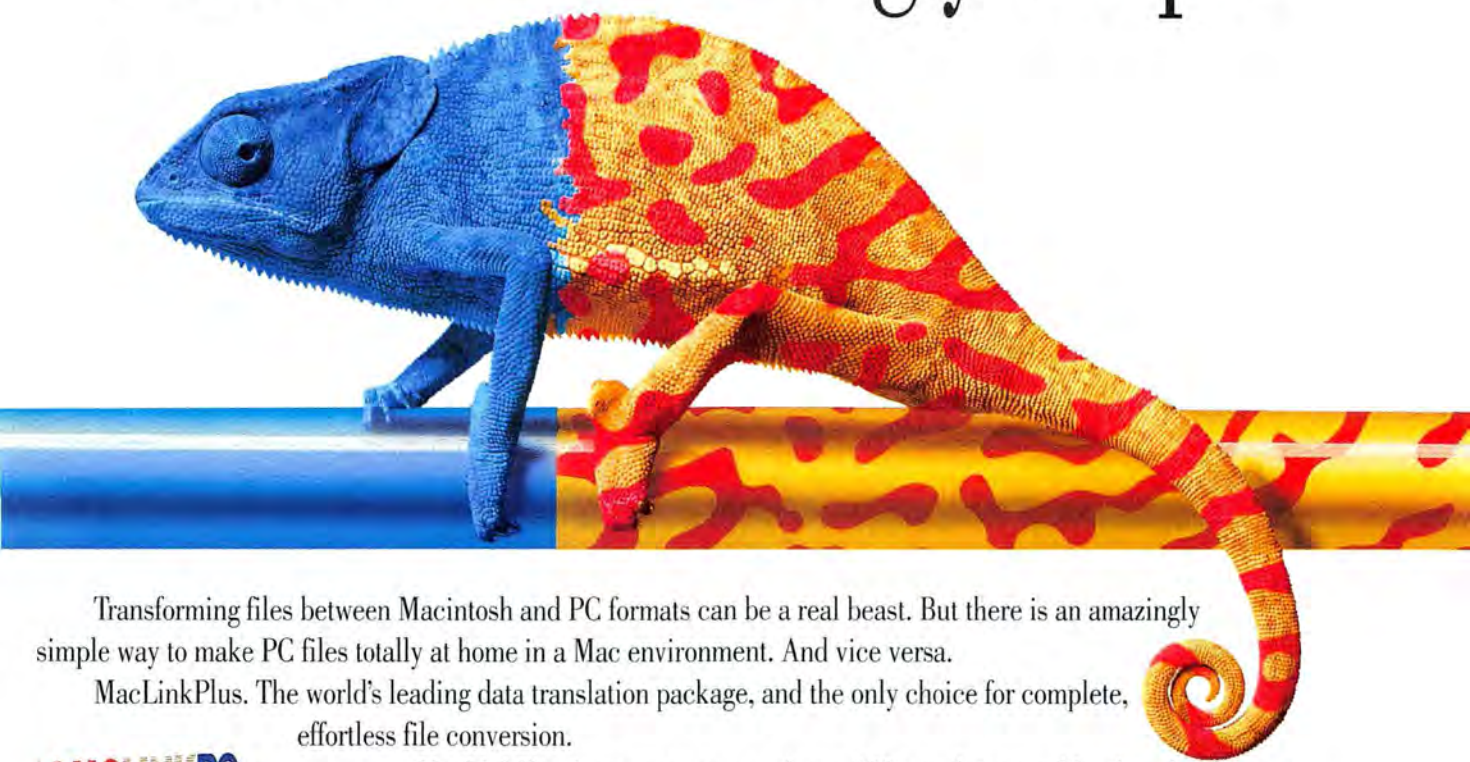
If you're just starting out in the cryptic world of packet analysis, these products may be the way to go. If, on the other hand, you're experienced with network administration, you may feel more comfortable with the no-frills approach of Neon's NetMinder LocalTalk and NetMinder Ethernet, which are geared toward enhancing performance and reliability. Both companies' products do an admirable job, but you pay a premium for AG's products.

John Battelle is a San Francisco-based writer who specializes in networking topics.



CIRCLE 84 ON READER SERVICE CARD.

With MacLinkPlus, Transforming Files Between Macs And PCs Is Amazingly Simple.



Transforming files between Macintosh and PC formats can be a real beast. But there is an amazingly simple way to make PC files totally at home in a Mac environment. And vice versa.

MacLinkPlus. The world's leading data translation package, and the only choice for complete, effortless file conversion.



MacLinkPlus is a vast resource of over 400 translator combinations for the most popular programs running under Macintosh, MS-DOS or Windows. Including Microsoft Word, WordPerfect, Excel, Ami Professional, MultiMate and dozens of other word processing, spreadsheet, database and graphics applications.

File translations are automatic with "point-and-click" simplicity, and we include DOS Mounter software so MS-DOS disks show up right on your Macintosh desktop. We even offer complete compatibility with XTND file conversion.

No matter what version of System you're running, MacLinkPlus sets the standard in ease of use. And our new version 6.0 is packed with features that exploit System 7 innovations.

For file translations when you're connected via a network, file server, or SuperDrive, all you need is MacLinkPlus/Translators. And for the added capability of file transfer using a cable or modem, MacLinkPlus/PC includes the same full array of translators as well as a serial cable and communications software.

Get MacLinkPlus 6.0 today. And watch all your PC files transform themselves before your very eyes. For more information, call DataViz at (800) 733-0030.

DATAVIZ™
THE DATABRIDGE SPECIALISTS

See us at MacWorld, Booth #1539, Moscone Center

All product names are trademarks or registered trademarks of their respective holders. DataViz, Inc., 55 Corporate Drive, Trumbull, CT 06611 (203) 268-0030

CIRCLE 171 ON READER SERVICE CARD.

Table 1: Features of Network-Administration Tools

	Apple Computer Inter•Poll	Distributed Technologies TalkManage (TalkSpy and TalkStat) 1.6	Farallon Computing TrafficWatch II
	‡‡‡½	‡‡‡	‡‡‡‡
List price	$129	$495	$895
Pros	Can create traffic. Excellent manual.	Part of integrated package of administration tools.	Can create traffic. Intuitive interface/graphs.
Cons	Limited utility. Useful for small networks only.	Cannot create traffic. Poor manual.	Not AppleTalk Phase 2-compatible. Awkward copy protection.
Features			
Filters	none	none	DDP, address
Charts	none	5, including usage, errors, and packet size	7, including summary, usage, errors, and packets received and sent
Error support	none	CRC, NoAbort, overrun	CRC, overrun, underrun, alignment, length
Protocols	LocalTalk	LocalTalk	LocalTalk, EtherTalk
Company	Apple Computer 20525 Mariani Ave. Cupertino, CA 95014 (408) 996-1010	Distributed Technologies Corp. 275 Wyman St. Waltham, MA 02154 (617) 684-0060	Farallon Computing 2000 Powell St. Emeryville, CA 94608 (510) 596-9100

Table 2: Features of Protocol Analyzers

	AG Group EtherPeek 1.04	AG Group LocalPeek 1.01	Neon Software NetMinder Ethernet 1.2	Neon Software NetMinder LocalTalk 1.0
	‡‡‡‡	‡‡‡‡	‡‡‡‡	‡‡‡‡
List price	$795	$495	$495	$395
Pros	Can create traffic. Feature-heavy. Modular design accepts new Ethernet cards and protocols easily.	Can create traffic. Many features make it suitable for inexperienced users. Supports SNMP.	Intuitive, clean interface. Excellent on-line help.	Intuitive, clean interface. Excellent on-line help.
Cons	Performance suffers because of excessive feature set.	Feature-heavy in some instances.	Cannot create traffic. No alarms or cut and paste.	Cannot create traffic. Doesn't support SNMP.
Features				
Filters	offset, address, protocol, hex/ASCII, error, size	offset, address, DDP	offset, address, DDP, OSI, protocol	offset, address, DDP, OSI, protocol
Triggers	time, offset, address, protocol, error	time, offset, address, protocol, error	time, offset, traffic, filters, traffic level	time, offset, traffic, filters, traffic level
Alarms	node, protocol, threshold, trigger	node, protocol, threshold, trigger	threshold	threshold
Protocols	AppleTalk, ARP, SNMP, IPX, DECnet, XNS, IPTalk	AppleTalk, SNMP	AppleTalk, TCP/IP, NetWare, XNS, DECnet, Bridge/3Com	AppleTalk
Company	AG Group 2540 Camino Diablo Walnut Creek, CA 94596 (510) 937-7900	AG Group 2540 Camino Diablo Walnut Creek, CA 94596 (510) 937-7900	Neon Software 1009 Oak Hill Rd., Ste. 203 Lafayette, CA 94549 (510) 283-9771	Neon Software 1009 Oak Hill Rd., Ste. 203 Lafayette, CA 94549 (510) 283-9771



Images scanned on a ScanMaker 1850S 35mm Slide Scanner

Microtek removes the biggest barrier to owning a Slide Scanner



If price has been the barrier separating you from high quality color scanning, take a look at the ScanMaker 1850.

Another stunning price breakthrough from Microtek, the leader in affordable color scanning solutions.

The ScanMaker 1850 sports a formidable set of specs. 35 x 35mm scanning area. 24-bit color. 8-bit gray-scale. 1850 dpi resolution.

Best of all, it's so easy to use. Just drop in any slide and you're ready to start scanning.

The ScanMaker 1850 gives you everything you need to go from comps to final color separations. It even comes bundled with PhotoStyler for the PC or Adobe Photoshop for the Mac.

But wait, it looks even better when you see the price. Just $2,995 for the ScanMaker 1850 on the PC. And only $3,195 for the Mac compatible ScanMaker 1850S.

24 bit Color 1850 DPI

Call 1-800-654-4160 or 213-321-2121 in California for the name of the Microtek authorized dealer nearest you.

Because the only barrier between you and a 35mm color scanner now is a toll-free phone call.



The ScanMaker 1850 is just one member of a whole family of affordable desktop peripherals available from Microtek.



CIRCLE 174 ON READER SERVICE CARD.

MICROTEK
Better Images Through Innovation.

•Microtek Lab, Inc., 680 Knox Street, Torrance, CA 90502, (213) 321-2121 (800) 654-4160 •Microtek International, Inc., No. 6 Industry East Road 3, Science-Based Industrial Park, Hsinchu Taiwan, 30077, R.O.C., 886-35-772155 •Microtek Electronics Europe, GmbH., Schiess-Straße 72, D-4000 Düsseldorf 11, F.R. Germany, 49-211-526070 • ©1991 Microtek Lab, Inc. All rights reserved. ScanMaker 1850 and ScanMaker 1850S are trademarks of Microtek International, Inc. PhotoStyler is a trademark of U-Lead Systems, Inc. Adobe Photoshop is a trademark of Adobe Systems, Inc. Macintosh is a registered trademark of Apple Computer, Inc. All other trademarks or registered trademarks are the property of their respective holders.

They laughed when database, but every



Okay, so maybe I'm not in MIS, but I grinned and loaded FoxBASE+/Mac.

The next day, I showed them a sample of their PC inventory database with not just how much of anything we had, but with pictures showing exactly what it looked like.

I ran their dBASE sales analysis program (using a couple of new Mac screens I whipped out) as they watched FoxBASE+/Mac scream through the numbers.

And then I showed them the kinds of reports they could get, using data stored in Fox or dBASE IV/III+ files on the PC.

You could have heard a pin drop.

Then they were all over me with questions, so I just handed them the FoxBASE+/Mac manuals and smiled.

Besides not being in MIS, I'm not a professional programmer, so you can tell how easy FoxBASE+/Mac is.

For the inventory system, I just used



I brought in my own one's smiling now.

FoxBASE+/Mac to read the database files they had on the PC (it reads Fox and dBASE IV/III+ files directly). I added a memo field into which I cut and pasted pictures that our DTP department had for our customer literature. Then I used the MacDraw-like screen painter to create a great color Mac output screen.

The sales analysis was easy, too. I had to create new screens but FoxBASE+/Mac ran the rest of the dBASE III+ program just fine. (It typically runs as much as 95% of standard FoxBASE+/PC and dBASE III+ code with no changes.)

And I built the reports I showed them from scratch. With no programming at all.

If you're looking for a better way to manage your data, call Fox Software and ask for their free demo. It limits the number of records you can store, but is the full program, so you can check it all out for yourself on your applications.

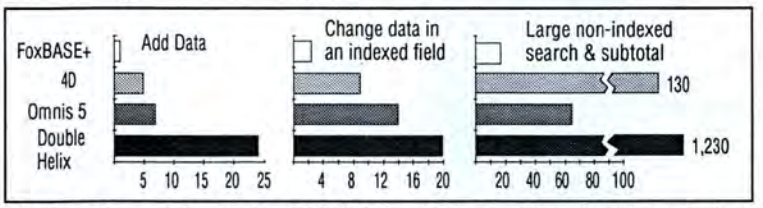
Around here, MIS has been pretty busy the last few weeks. They've hooked up Macs and PCs on an Ethernet network and our information and data processing systems are looking great.

They're building Hypercard-like applications I see people using all over the place.

Accounting likes all of this because the single-user version lists for $495, and the unlimited Multi-User version is only $695.

And even the PC programmers are happy. I hear them talking about things like the great trace and debugging facilities, adding XCMDs and XFCNs, the dBASE-like programming language, System 7 compatibility, full file and record locking in the multi-user version, and how FoxBASE+/Mac is "so astoundingly fast for a Mac."

Everyone seems to be laughing more now, too.



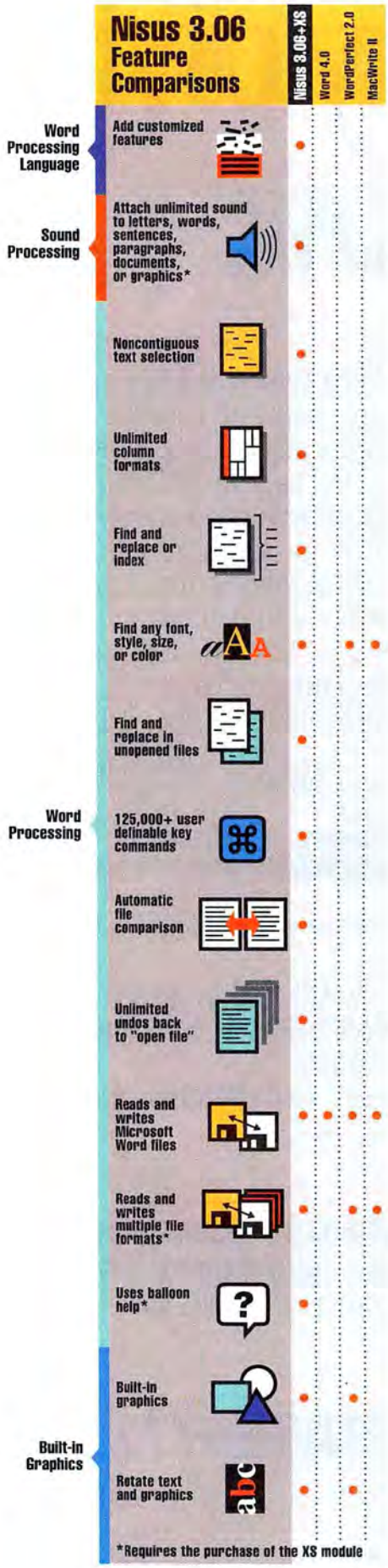
As MacUser said, with FoxBASE+/Mac "data handling is extremely fast."

Call 1-800-837-FOX2 or 419-874-0162 today for a free, full-featured demo.

(Ask for Offer MUS 201)

FoxBASE+/Mac™

Speed test charts reprinted from MacUser June, 1990. © Ziff Communications Company. FoxBASE+/Mac is a trademark of Fox Holdings Inc.; other products and services are not. © Fox Holdings Inc. 1991.



★★★★1/2 MacUser Magazine /System 7 Compatible

Nisus® is the only word processor that can reformat a mainframe file, illustrate a medical procedure, and even help you learn to read, write, and speak a foreign language.

Nisus' built-in word processing language manipulates words like databases manage data, so mainframe file conversions are easy. Nisus lets you communicate the way the Macintosh works—with words, graphics, and sound.

Word Processing. If you want a word processor that is as easy to use as MacWrite II but more powerful than Microsoft Word 4.0, buy Nisus. All word processors have "find and replace." Nisus lets you find any word you want to change, (even words with a special *font*, size, *style*, or color)—even in unopened files—and then replace or *index* your changes. You can select noncontiguous words or use the unlimited undo all the way back to when you opened the file.

Graphics. Sometimes, something as simple as a note with an arrow attached is all you need to make your point. You can "Place" any page of a Nisus file containing text and graphics into another Nisus file where it becomes a graphic. Double clicking "Placed Page Graphic" will open the original file for editing. Graphics can be drawn or pasted to three different layers: the text layer, behind the text, and in front of the text.

This is an example of how to draw attention to something in a document.

Nisus lets you rotate text, which is important if you are designing a two-fold three-panel self-mailer. Nisus also prints pages in pamphlet style with correct pagination for assembly.

Built-in Word Processing Language. Nisus has a built-in word processing language which does for word processing what built-in languages do for databases. For example, the language allows you to develop commands to index all proper names, find and correct all double words, periods, and extra spaces, or to index every word in a document except those you specifically want to exclude. You design features just right for you.

Sound Processing in Nisus XS. The way people communicate most often is with the sound of their voice. Now you can do just that with our new module *Nisus XS*. Attach sound to a character, word, sentence, paragraph, or document. You can even attach it to a graphic. Imagine being able to teach the *sound* of a foreign language, hearing the pronunciation of technical terms, or simply attaching sound to text to teach reading.

Nisus XS takes advantage of Balloon Help, the Publish & Subscribe features of System 7, and for interapplication communication Nisus has implemented Apple Events.

Discover why the world writes with Nisus. Find out why *MacUser* gave Nisus ★★★★1/2, *Byte* Magazine gave Nisus its 1990 Award of Merit, *MacUser U.K.* named Nisus "1989 Best Word Processor," Nisus is shipped with every Macintosh in Korea, and *Macworld Australia* has standardized on Nisus. Note also that Nisus is available in Hebrew, Japanese, and Arabic versions. **Call and ask for our free brochure, "How Nisus compares with other word processors." And visit us on CompuServe at our new Paragon Forum. We can't promise sound on CompuServe, but once you use Nisus, you'll know you made a sound decision.**

1990 BYTE AWARD OF MERIT

(800) 922-2993 Extension 2030

See us at MacWorld, Booth #1737

Nisus is a registered trademark of Paragon Concepts, Inc.
Other tradenames are trademarks of their respective companies.

PARAGON concepts, inc.
990 Highland Drive
Suite 312
Solana Beach, CA 92075
(619) 481-1477

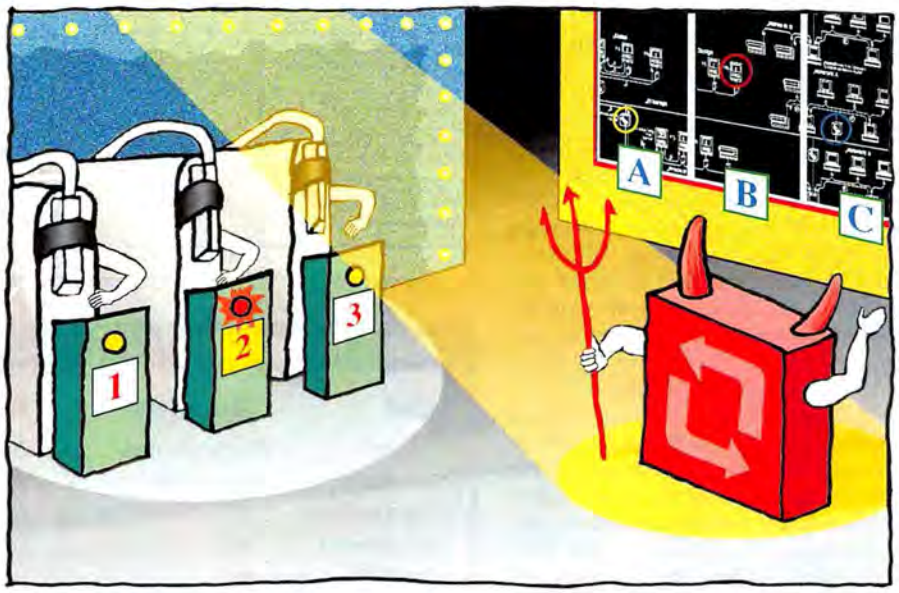
USERS CIRCLE 167 ON READER SERVICE CARD.

DEALERS CIRCLE 168 ON READER SERVICE CARD.

To Tell the Truth

What's the best way to find out which of your routers are misbehaving? Just ask them.

By Kurt VanderSluis



AppleTalk routers have the marvelous ability to take a tiny "seed" of information (which networks and zones they're directly connected to) and, by exchanging this information with other routers, deduce the structure of the entire internet and intelligently route data packets through it. Unfortunately, a single misconfigured router can lead other routers astray, creating a cascade of network troubles. For example, someone enters erroneous information in one router, and other routers learn this misinformation and spread the problem. Before long, strange zones may appear in the Chooser, printers and file servers may disappear, or you may experience long delays when using network devices.

Troubleshooting in such a situation resembles the classic riddle about going to a city in which there are only two groups of people—liars and truth tellers. To figure out who belongs to each group, you must ask questions that reveal which kind of person you are talking to. The difficulty lies in the fact that the members of each group will say they are telling the truth.

A misbehaving router can give you information that's just as misleading. One way you can locate errant routers is to use Apple's Inter•Poll to search for clues in zone and device names (see "Rogue Routers," November '91, page 197). This low-tech method sometimes does the trick, but it can't locate subtle problems such as routers that have overlapping network-number ranges. A more advanced approach uses a protocol analyzer such as AG Group's EtherPeek or LocalPeek or Neon Software's NetMinder to capture and decode the information packets sent by different routers; by comparing this data, you can locate discrepancies (see "A Packet Full of Trouble," December '91, page 215).

Each method has its uses, but the simplest approach is to directly ask a router about the accuracy of its information. In this final segment on router-configuration problems, I'll show you a new tool, PacketSend, that can directly ask routers revealing questions. By looking at the answers with a protocol analyzer, you can quickly find the "liars," the routers that are improperly configured. Once you've identified the bad router (or routers), you can take it off-line, reconfigure it with the correct network information, and return it to action.

Because routers keep track of where all the networks and zones in an AppleTalk internet are, they are frequently asked for information by Macs as well as other routers. Routers use two internal protocols to manage network information: the RTMP (Routing Table Maintenance Protocol), which keeps track of where all the networks are, and the ZIP (Zone Information Protocol), which monitors what networks constitute what zones. Both the RTMP and the ZIP send out information packets containing this stored data whenever another device requests network or zone information (see Table 1). If a router is misconfigured, its RTMP and/or ZIP data will be incorrect and

the router will spread this misinformation to any device that asks for it.

When you open the Chooser, for example, your Mac must ask a router to provide the zone list that appears in the Chooser window. The packet that asks that question is called ZIP GetZoneList. The router responds by sending the Mac a ZIP GetZoneList Reply packet, which contains a list of all the zones it knows about. If your Mac is on a network that has more than one router, the Mac will ask for the zone list from whichever router it got an RTMP packet from last. The Mac's choice of router shouldn't matter, because all the routers should return the same answer. If some routers are misconfigured, however, the zone list may vary, depending on which router is queried.

As previously discussed, you can use a protocol analyzer to intercept and read the contents of routing packets to see if all the routers are providing the same answer. Unfortunately, this technique can be time-consuming and tedious — you must "eavesdrop" on the routers' network conversations and then sort through the data to find the specific information you need. A more direct approach is to ask the routers for the specific information you need.

I've developed a shareware HyperCard stack called PacketSend that lets you directly query routers about their network and zone information (see Figure 1). It can be utilized on any AppleTalk network, including LocalTalk, Ethernet, and token-ring configurations. PacketSend is designed as an adjunct to network-management tools such as NetMinder and EtherPeek, and you'll need one of these protocol analyzers to capture and decode the response packets. PacketSend can query several routers on a network simultaneously, however, letting you gather data from all your routers in one fell swoop and quickly pinpoint discrepancies in their network and zone information.

PacketSend can send all the query packets listed in Table 1. ZIP GetNetInfo, for example, is a useful packet for troubleshooting, because it asks a router to verify a zone name. Macs on Ethernet networks (AppleTalk Phase 2 only) automatically send this packet on startup to verify that the zone name they used last is still valid. If a Mac was in the Western Sales zone yesterday, on startup it will send a ZIP GetNetInfo packet to the last router heard from to verify that Western Sales is still a valid zone name. If the router thinks that Western Sales is valid, it will return the network numbers that go with that zone. If the router disagrees, it will inform the Mac that the zone is invalid, provide the name of the network's default zone, and supply the network numbers that correspond to the default zone.

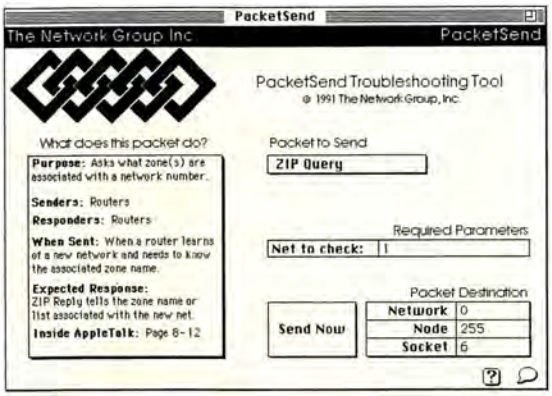


Figure 1: PacketSend is a shareware HyperCard stack that lets you ask routers questions about their network and zone information. By examining the responses with a protocol analyzer, you can quickly track down misbehaving routers. PacketSend is available for downloading from Zmac.

Table 1: Router Q&A

Packet	Data supplied	Answer returned
ZIP Query	Network number	Zone name(s)
ZIP GetNetInfo	Zone name	Valid/invalid, network number(s)
ZIP GetLocalZones	NA	Zones assigned to this network
ZIP GetZoneList	NA	List of all zones throughout internet
RTMP RDR	NA	List of all networks and hop distances

Table 1: Network devices such as Macs and routers send out a variety of query packets (left) to learn network and zone information. These packets are received and answered (right) by routers. To pinpoint router problems, you can use a protocol analyzer to capture and decode the response packets and then search for discrepancies in the information.

PacketSend can send a ZIP GetNetInfo packet to all the routers on the network at the same time. Because there is more information in a ZIP GetNetInfo Reply packet for an invalid zone than there is for a valid zone, the routers that think that Western Sales is invalid send longer response packets. A protocol analyzer such as EtherPeek or NetMinder can display a list of the response packets and their lengths. By scanning this list for longer packets, you can easily pick out the routers that don't know about this zone — a good clue as to which routers need reconfiguring.

Another useful packet is ZIP Query. Whereas ZIP GetNetInfo supplies a zone name and asks for the corresponding network number (or range), ZIP Query supplies a network number and asks for the corresponding zone name (or list). PacketSend can transmit this packet to all the routers on your backbone at the same time, letting you quickly compare the responses and spot misconfigured routers.

Say, for example, that your Ethernet network should have ten zones available but a technician mistakenly typed just a single zone name into one of the routers. You can easily find that router, as well as other routers it has led astray, by using PacketSend to send a ZIP Query to all the routers, asking for their zone names. The misconfigured routers — those that know about only one zone name — will return shorter packets.

You can download PacketSend from Zmac, *MacUser*'s on-line service (look for PKTSND.SEA in Library 6 of the Download & Support Forum) as well as from other on-line services. Alternatively, you can order it directly from me at The Network Group ([206] 789-3111). The shareware fee is $40. As previously noted, you need HyperCard 2.0 (or later) to run PacketSend and a protocol analyzer such as LocalPeek, EtherPeek, or NetMinder to decode the response packets.

Kurt VanderSluis is president of The Network Group, a training and consulting firm in Seattle.

QuicKor Lease

YOUR MAC!

LEASING MAKES GOOD $ENSE!

68040 at 25MHz

Mac Quadra 700
$299* per month

E-MACHINES

- 8MB RAM
- 210MB Quantum Hard Drive
- E MACHINES T-16 Color Monitor
- Expanded Video RAM for 24 Bit Color
- Extended Keyboard
- QuicKor Kare

5 YEAR HD WARRANTY

68030 at 25MHz

HEWLETT PACKARD

- 234 MB Hewlett Packard HD
- 8 MB RAM
- 14" Color Monitor with 256 Colors
- Cache Card
- Ext Keyboard
- QuicKor Kare

Mac IIci
$175* per month

Mac Classic II
$84* per month

68030 at 16MHz

- 4MB RAM
- 105 MB Quantum Hard Drive
- Carrying Case
- Standard Keyboard
- QuicKor Kare

CONSIDER THESE ADVANTAGES

- Leasing is FAST and EASY!
- Get more computer for your money - Leasing costs less
- Tax advantage - payments can be a deductable expense
- Have the system you need NOW, when you need it!
- Conserve your working capital
- Equipment pays for itself
- Have flexibility to expand

HERE'S HOW:

Just call with your business info, trade references and bank contact. We'll quote your package and ship your order upon quick credit approval!

*All leases are 3 year leases w/10% residual. Call for details.

68020 at 16MHz

- 4 MB RAM
- 40 MB Apple HD
- 13" Sony Trinitron Monitor
- Expanded Video w/256 Colors
- Math Coprocessor
- Standard Kbd
- QuicKor Kare

Mac LC
$99* per month

68040 at 25MHz

Mac Quadra 900
$325* per month

- 16 MB RAM
- 210 MB HD
- Apple RGB Monitor w/24 Bit Color
- Ext Keyboard
- QuicKor Kare

BUSINESS LEASES AT AMERICA'S BEST RATES!

Mac si
$143* per month

68030 at 20MHz

- 3 MB RAM
- 120 MB Connor Hard Drive
- 14" Color Monitor with 256 Colors
- Extended Kbd
- QuicKor Kare

QuicKor TS
POSTSCRIPT LEVEL 2 PERSONAL LASER

A QuicKor Lease on a QuicKor Printer makes fast work of any job!



Add the QuicKor TS Laser Printer to any package for just **$69 per month**

- 35 genuine Adobe P/S fonts
- Auto switch between 4 optional paper trays
- Super fast RISC controller
- 2 MB RAM upgradeable to 10
- SCSI port for adding a hard drive
- Compact design
- Includes QuicKor Kare

EVERY LEASE comes with 2 years of QUICKOR KARE extended service!

Why Lease your Mac from MacFriends?

- Competitive Pricing
- Customer Package Design Assistance
- Better Performance and Warranties
- Unlimited Toll-Free Technical Support for 2 years
- Products Pre-assembled and Tested

We're the Nation's MAC Specialists!

Mac Friends

AMERICA'S "MAC-ONLY" STORE

Call MacFriends Today... The QuicKor The Better!!

STOP!
Don't be fooled when comparing systems.

QuicKor Kare

- 2 years extended service
- Next day air equipment replacement
- Unlimited toll free technical support (Unlimited hand holding by experts!)

Call Toll Free Today!

800 331-1322

24 HOUR QUICKFAX: (503) 286-8710 LOCAL: (503) 286-9350

FEDERAL EXPRESS

CIRCLE 95 ON READER SERVICE CARD.

Introducing the LabelWriter II. The fastest and easiest way to make labels.



Actual size: 6.5" x 4.5" x 7" (HWD). White and clear labels are both available.

While the original LabelWriter® ushered in a convenient way to make labels, the LabelWriter II perfects it. It's about five times faster, offers twice the print resolution, and can handle 350-label rolls. And for the first time, clear labels are available.

This mighty little printer comes with powerful software that lets you create, format and print a label at any time, without interrupting your main programs. You can also combine text in any font and style with clip art and graphics.

The LabelWriter II software also manages an unlimited number of mailing lists, prints postal bar codes, bar code 39, and serialized labels. There's even a print driver that lets you print directly from your favorite programs.

Compare the original CoStar LabelWriter to the new and improved LabelWriter II.





	Original LabelWriter	New LabelWriter II
Average Speed	15-20 seconds per label	3.5 seconds per label
Print Resolution	72 dpi x 105 dpi	138 dpi x 138 dpi
Label Capacity	130 labels per roll	up to 350 labels per roll

For bigger jobs, there's LabelWriter II Plus. Same small size, but with the ability to print on larger 2¼" x 4" and 3.5" disk labels.

The LabelWriter II and LabelWriter II Plus retail for $249 and $399 respectively; and are compatible with System 6 and 7, Adobe Type Manager™ and TrueType.™ An AppleTalk® option is also available.

For more information or a dealer near you, call 1-800-4-COSTAR or 1-203-661-9700.

CIRCLE 88 ON READER SERVICE CARD.

220/240v model also available. AppleTalk Network Box, Model #40300
©1991 CoStar Corp., 22 Bridge St. Greenwich, CT 06830. Fax 1-203-661-1540.
CoStar and LabelWriter are registered trademarks of CoStar Corp. All other trademarks acknowledged.

See us at Macworld Moscone Ctr. #137

CO STAR

Remember the high-school sophomore who refused to dissect a frog on moral grounds and then took her school to court when her grade was lowered? Apple featured this student, Jenifer Graham, in a TV ad in which she "dissected" a virtual frog by using an Apple II program called Operation: Frog. Now Scholastic Software plans to bring Operation: Frog to the Mac. Maybe schools should also look at a program from The Software ToolWorks ([415] 883-3000) called Life and Death ($49.95), with which you save a life rather than pick one apart.

By James Bradbury



Big to-do: If your to-do list has become so complicated that you're thinking about moving it to a project-management program, you might want to check out In Control, a $129.95 to-do-list manager from Attain ([617] 547-2188). In Control is the brainchild of Alan Albert and Dan Chadwick, the original authors and publishers of a little flat-file-database program called FileMaker. As with FileMaker, In Control's design emphasis is on simplicity and elegance, and the result looks like the offspring of a flat-file database and an outlining program.

Powers of deduction: Tax forms seem to get more complicated annually, but one choice will be clear this year. If you want a dedicated tax program, it's going to be MacInTax (although from a new publisher). ChipSoft ([619]) 587-3939), the publisher of TurboTax, acquired the original MacInTax and its publisher, SoftView, last summer. The two products have been combined under the MacInTax name. Previous users of either product can get this year's forms for $49.95. New users can get MacInTax for $79.95 or as part of a bundle with Intuit's excellent personal-finance program, Quicken 3.0, for $169.



Lost and found: Here's a new option for PowerBook owners who want some added physical and legal protection for their charges. Magenta Seven ([919] 787-2787) is offering the MagentaCase for $85. The blue-with-gray-trim Cordura case has an unusual twist: Each case is "uniquely coded" so that if it is lost or stolen and then recovered, the original owner can be identified. So if you find a PowerBook in a blue-with-gray-trim case, just drop it into the nearest mailbox.

Just for fun: The $54.95 Flight Simulator 4.0, from Microsoft ([800] 541-1261 or [206] 882-8080), appears to be an instant hit among the virtual-piloting crowd. It has an amazing degree of realism in everything from mechanical difficulties to weather conditions. If you plan to climb into the cockpit, though, you might want to pick up a few accessories to make your time aloft even more realistic. The first add-on you should get is the $99.95 Advanced Gravis joystick, from Advanced Gravis Computer Technology ([604] 434-7274). It's the only joystick that is currently compatible with FS4, and if you buy two, you'll be able to fly while scarcely touching the keyboard. ✶ Although Microsoft provides plenty of detailed scenery to fly over, you can take your plane even farther by getting a scenery-upgrade disk from Mallard Software ([214] 436-0044). Four disks are available for $59.95 each, offering locales from New England to Japan to Old England.





Full-bleed tabloid

Incomparable Comps.

Outstanding Overheads.



Overhead transparency



Standard tabloid

Fantastic Finish.

Perfect printing.

Your work deserves it and ColorMaster® Plus was specifically designed to deliver it.

ColorMaster Plus has the right resolution: 300 dpi

You get PostScript® language compatibility, and instant access to a wide range of software.

For accurate color, it's PANTONE® approved.

Size selection? Letter or tabloid with full bleed–giving you the largest live image of any cut-sheet desktop printer.

Plenty of ports, too. SCSI, Appletalk, RS-232 and Centronics parallel so you can mix and match different computers on one ColorMaster Plus printer.

New ColorMaster Plus



Plus, there's something you just can't get anywhere else: CalComp product quality and long term commitment to service, support and supplies. Our **1-year on-site warranty** is only one example.

Your incredibly intelligent next step? Call **1-800-932-1212** for more information. In Canada, 416-635-9010.

We draw on your imagination.™

CalComp
A Lockheed Company

Phoenix Page Color is a trademark of Phoenix Technologies, Ltd.

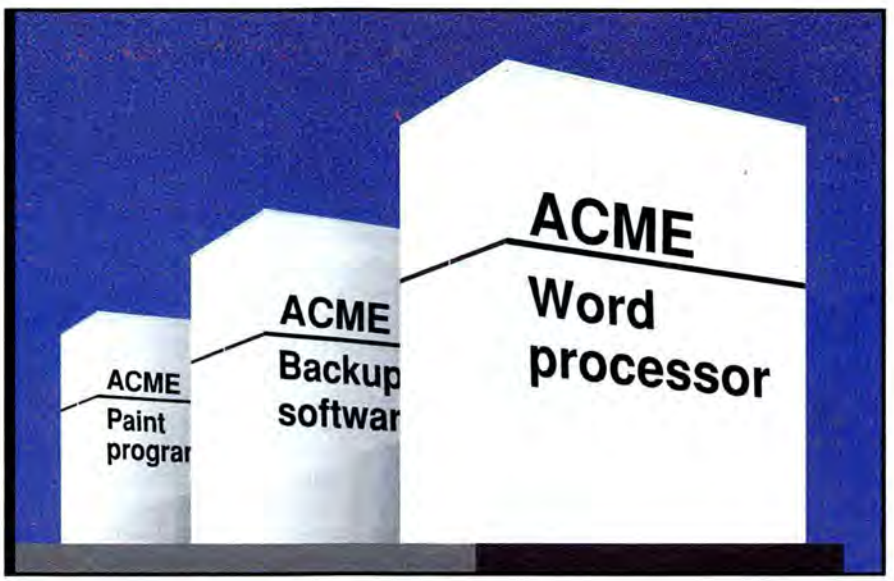
© 1992 CalComp Inc. P.O. Box 3250, Anaheim, CA 92803. ColorMaster Plus and We draw on your imagination are trademarks of CalComp. PostScript is a registered trademark of Adobe Systems, Inc. AppleTalk is a registered trademark of Apple Computer Inc. Pantone is a registered trademark of Pantone Inc.

Come see us at MacWorld SF in Moscone Booth 907

Down to Basics

Would you consider buying the ugliest word processor, using the slowest backup method, or getting the cheapest painting program? Here's why you should.

By Steven Bobker



In the first installment of Personal Best (November '91, page 205), we looked at some of the expenses a first-time Mac buyer needs to budget for. The hardware is the most obvious component of any computer purchase, but first-year software and operating expenses frequently match or even exceed the cost of hardware. We'll continue the explorations here, with a closer look at two of the most important applications for users — backup and word processing.

First, though, one correction and an important update: When I wrote the first Personal Best article, Apple's TrueType was preferable to Adobe's ATM for handling screen fonts. TrueType was Apple's new standard, and although not perfect, it was an adequate product for all but the most demanding users. As often happens in this industry, things have changed almost overnight. Apple and Adobe have patched up their typographic differences. The rift between them a couple of years ago had caused Apple to develop TrueType as a replacement for ATM. Now that the two companies are palsy-walsy again, Apple has announced that ATM technology will become part of future Mac system software: Further TrueType development has been canceled.

As a result, ATM is important software for most users. It greatly improves the appearance of screen fonts and output from QuickDraw printers, such as the DeskWriter and the StyleWriter. ATM costs about $70, but most users will spend more, because they'll want to buy additional fonts. Adobe sells font packs that are good price/performance buys for those who want lots of fonts. An even better way to get a lot of nice fonts is to buy Fluent Laser Fonts Library, from Casady & Greene (Salinas, California). For $179, you get 79 Type 1 fonts that are perfect for use with ATM.

The update information is about MasterJuggler, from ALSoft (Spring, Texas). The System 7-compatible version 1.57 is out and at such a low price that you should simply go to your dealer or call your favorite mail-order supplier and order it. It's very nice and highly recommended for dealing with fonts, DAs, Fkeys, and sounds.

Get Your Back Up

One of the first software investments every computer user should make is to buy a backup program: The best choices are Redux ($99), from Microseeds Publishing (Tampa, Florida), and Retrospect ($249), from Dantz Development (Berkeley, California). Just owning a backup program isn't sufficient. You need to use it regularly and have a safe place to store your backed-up data. The best backup medium today is DAT tape. The tapes are inexpensive enough: $13 to $18 for a tape that holds 1.3 gigabytes (16 full backups of an 80-megabyte hard disk). Unfortunately, the necessary hardware costs at least $1,500 (although that includes Retrospect or other good software). So for now, let's put the DAT drive on next year's wish list.

Other choices include SyQuest, Ricoh, and Bernoulli magnetic-cartridge drives and traditional cassette-tape drives. These are also too expensive this year.

At present, the most economical choice for backup media is floppy disks, which require no additional hardware. Get 1.4-megabyte high-density disks rather than the less-expensive 800K double-density disks, and use new, high-quality disks for your backups. Buy a box of 100, and on a rainy afternoon, format them all. It's boring but necessary. If you want to speed up the job a bit, get the $21 shareware program QuickFormat! 6.3. Be sure it's set to verify each disk.

Next, divide your disks into sets. You'll need about 22 disks for each 40 megabytes of hard-drive capacity. You should have at least two full sets, which you can use alternately for backup. If possible, periodically make a full backup to a third set that you can store away from your computer's location. This lets you keep the regular sets at home, assuming that that's where your computer is, and the third set at work. By the way, don't keep any of your backup sets in the same room as your computer. Don't even store a set in the same room as the other set. This may sound paranoid and excessive, but one day such precautions will make you a much happier computer user!

Know Your Writes

Now that you know how to safeguard your data, let's talk about how you're going to create some data worth safeguarding. For most users, a word processor is their main tool for data entry—but how do you choose a word processor?

Fortunately, you have a wide range of choices. Mac word processors range from simple text editors (with correspondingly small price tags) that do only the most basic chores to pricier super power-user behemoths that boast page-layout and graphics capabilities.

First, figure out what kinds of features you need. Several high-end word-processing programs have built-in drawing and graphics modules, which seem like a waste of disk space and programming effort to me. If you need to create graphics, use a dedicated graphics program. Such programs aren't necessarily expensive, as my Pick of the Month demonstrates.

Other word processors claim to be able to do page layout. None are precise enough for professional-caliber work, however. You might be able to knock off a quick newsletter, but if looks really count, you'll want a genuine page-layout program such as PageMaker, from Aldus (Seattle, Washington); QuarkXPress, from Quark (Denver, Colorado); or Publish It! Easy, from Timeworks (Northbrook, Illinois).

Other word processors make a point of their extensive dictionary and thesaurus features, but you can easily add a wonderful spelling checker and dictionary to any word processor. Get a copy of the superb Thunder 7 ($99.95), from Baseline Software (Memphis, Tennessee), which is the best spelling checker available. It can be set to open automatically in any program, not just in your word processor.

I should also comment that as a writer,

How can I add a large screen to my Mac PowerBook?

ScuzzyGraph™ ...that's how!



ScuzzyGraph is the only display adapter that lets you instantly connect any monitor, monochrome or color, to any Mac, on your desktop or on the road.

- To install: Just Plug it in.
- Small and portable... Won't clutter your desktop
- Allows use of both screens.
- Moves easily from Mac to Mac

Also available for the Plus, SE, Classic, and Portable.

ScuzzyGraph... Mac's first SCSI display adapter
...and still the best.



For information call 1-800-365-AURA
Aura Systems, Inc. • P.O. Box 4576, Carlsbad, CA 92018 • (619) 438-7730

CIRCLE 110 ON READER SERVICE CARD.

I have never found any electronic dictionary or thesaurus half as good as my hard-copy standbys (*The American Heritage Dictionary of the English Language* and the original *Roget's Thesaurus*, not *Roget's II*).

Once you've eliminated the gewgaws, you get down to brass tacks: basic wordsmithing. Speed counts. I'm a slow typist, but even I can outtype Taste ($149) and its higher-priced cousin MindWrite ($295), which are from Monterey, California-based Delta Point. The rest of the pack can stay ahead of me and all but the fastest typists.

That brings us to the interface, which basically determines how easy it is to learn and use a program. The programs that conform most closely to Apple's Human Interface Guidelines are WriteNow ($199), from T/Maker (Mountain View, California), and MacWrite II ($249), from Claris (Santa Clara, California). Both are excellent word processors, but I can't generate any enthusiasm for their on-screen looks. They're easy to learn, precisely because they do follow the rules, and they're easy to use, because they have a nice mix of features. MacWrite II is scheduled to acquire a high-end relative called MacWrite Pro around the time this is published. Hopefully MacWrite II will still remain on the market. WriteNow is also scheduled to be revised in 1992. The current version, 2.2, is not 32-bit clean and freezes on launch if 32-bit addressing is on. That limitation means that LC owners with 10 megabytes of RAM can use only 8 megabytes (the 24-bit maximum) if they also want to use WriteNow.

Mac word processors range from simple text editors that do only the most basic chores to power-user behemoths that boast page-layout and graphics capabilities.

So what's left? The three word-processing heavyweights: Word, Nisus, and WordPerfect. Each one has an idiosyncratic version of the Mac interface. None of them can be called pretty, and all of them come with a steep learning curve. WordPerfect ($495), from WordPerfect Corp. (Orem, Utah), is popular among users who have already learned it on other platforms or who work for companies that have standardized on it (in the DOS world, WordPerfect is the overwhelming market leader). Outside of those groups, though, its performance and interface quirks have kept it from achieving similar success in the Mac market.

Nisus ($395), from Paragon Concepts (Solana Beach, California), has the ugliest interface of the bunch, but it's also the most powerful program. It has search-and-replace capabilities other programs can't even approach. If you must handle large quantities of text, there's no other choice.

Why isn't Nisus the overall champ? It's published by a small company and is

FOLIO 1™

D'pix presents *FOLIO 1*™, nominated for "Best Visual Resource" in the 1991 MacUser Editors' Choice Awards. *FOLIO 1* includes 100 photographic images, perfect for use as backgrounds in video and print.

All 9" x 12" images are royalty-free with unlimited reproduction, broadcast, and modification rights. Call today to find out why the MacUser editors selected *FOLIO 1* as one of the best photographic collections on the market.

CHOICE • NOMINEE • MACUSER • EDITORS • 1991

International orders call: 1-614-299-7192

1-800-238-DPIX

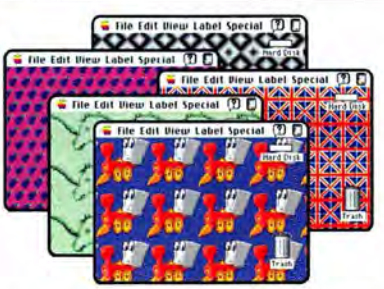
1-800-238-3749 • 8-8 E.S.T.

D'pix VISUAL VELOCITY

414 W. 4th Ave., Columbus, OH 43201

CIRCLE 32 ON READER SERVICE CARD.

CHOICE • NOMINEE • MACUSER • EDITORS • 1991



Now your desktop can be as pretty as your screen saver.

Why wait until you're *not* working to have a beautiful screen? With Wallpaper™, your monitor can bloom with color all the time, not just after dark.

Choose from one of the hundreds of included patterns. Or create your own with our complete paint tools. And when you get tired of one pattern, another is just a mouse-click away.

Wallpaper™



For SE/30 and above.

Only $59.99!

Orders/Inquiries (212) 673-9724

*New York residents add New York state and/or city sales tax
107 University Place, Suite 4D, New York, NY 10003

©1991 Thought I Could ™

See us at MacWorld Expo, Booth 1940, Moscone

CIRCLE 50 ON READER SERVICE CARD.

unknown to most users. Its recent upgrade to System 7 compatibility was handled poorly — it was too difficult to obtain and cost too much. The program is slow at some things (launching it seems to take forever) but very fast at others (such as global search-and-replace). The manuals need a lot of work. If Microsoft or Claris were its publisher, however, Nisus would be No. 1 in the Mac word-processing arena. It is the best.

Finally we get to the real No. 1 in the Mac word-processing universe: Word ($395), from Microsoft (Redmond, Washington). This is a program users either love or hate. It's very powerful but also has a steep and difficult learning curve. Once mastered, it's as easy to work with as WriteNow is. There are lots of decent books to help too. Word's best feature is its Commands command, which lets you customize menus so you can select the features you want immediately accessible and choose the menu on which those commands appear. If you want, you can mimic the menu structure of WriteNow or MacWrite.

What's my choice? The first drafts of this column were written in Nisus, and final polishing was in Word, the program *MacUser* uses internally.



CIRCLE 65 ON READER SERVICE CARD.

Pick of the Month

Color It!, from MicroFrontier (Des Moines, Iowa), is an incredible bargain. This graphics package lists for $129 but is capable of many of the effects and tricks of high-end painting and photo-retouching programs that cost four times as much. It works on black-and-white as well as color systems and can handle 32-bit graphics.

Thanks to an excellent manual, Color It! is easy to learn. It should handle the painting and photo-manipulation chores for all but the most demanding pros. And it's a lot of fun to use.

Counterpoint

Janet H. Gallagher, of Waterloo, Iowa, disagreed with my advice in the first Personal Best column to avoid integrated packages. She's been a Mac owner since 1984 and makes some excellent points:

"I think they're great — whether it's Microsoft Works, GreatWorks, ClarisWorks, or BeagleWorks. They are straightforward, without a lot of confusing power-user features that you really don't need at first. You may outgrow some of the modules after a while, but you'll learn what you really need.

"And that will never happen unless you dig in and use something. Everybody has a use for the basic four. Use the database module to keep your address list and household inventory. Use the spreadsheet module for a budget, to figure car payments, to summarize your tax deductions, add up wedding RSVPs, and keep track of your golf scores. Use the drawing/painting module to lay out room arrangements, put together posters, and just have fun. The word processor that comes in one of these

Word is very powerful but also has a steep learning curve. Once mastered, it's as easy as WriteNow.

packages is plenty good enough for normal home or office use. A spelling checker, a thesaurus, multiple columns, and mail-merge features are all standard equipment. In addition, there is only one package to take up memory and hard-drive space, only one manual to read, and only one upgrade fee to pay when the time comes."

The comments about upgrade price are particularly important in this day of expensive ($50 and higher) upgrades. My view of the quality of the modules is that they are, in almost all cases, less capable than equivalent low-cost commercial offerings. However, if your aims for your LC are simple — to use it as an electronic secretary to take over some basic household chores — then as Janet points out, integrated software makes sense.

Useless But Wonderful

This month, in lieu of an Easter egg, we have a program that is simply different. It doesn't really do anything useful — or maybe it does. Its concept is close to repugnant, yet the program delights almost all who see it. Personally, I have no liking for guns and favor strict gun control, yet Madness — Rage! has a permanent place on my disks. It's not a gun and it doesn't make me wish I had a gun, but it sure helps me release some of my frustration when my Mac does what it wants to instead of what I want it to.

What is this thing, and what does it have to do with gun control? It's a shareware control panel (available, as MAD.SEA, in Library 3 of Zmac's Download & Support Forum and from all the other usual shareware sources). It lets you shoot virtual bullet holes in your Mac screen, which can be a wonderful frustration reliever (my keyboard also takes less of a pounding). The sound and visual effects are quite realistic.

The program does have its own sort of gun control: Until you've registered your copy, you have only one gun; registration brings a variety of additional guns, a cow, and other benefits.

Steven Bobker is acting as sysop (system operator) for Zmac, *MacUser*'s on-line service.

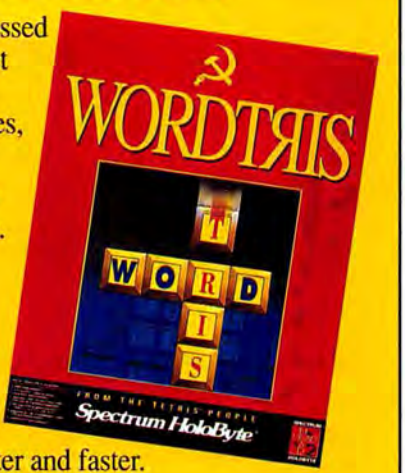
There's A New 'Tris On The Block.

If you love TETRIS, you'll be obsessed with WORDTRIS™! In this new Soviet challenge, the falling pieces are letter blocks, and instead of just forming lines, you make words.

Every time a word is formed either vertically or horizontally, it disappears. The more words you make, and the more complex the words, the more points you earn. A built-in 30,000 word dictionary checks even the most obscure word.

But the real challenge builds as the levels go higher and the letters fall faster and faster.

WORDTRIS. Let the alphabetical adrenalin flow!



FROM THE TETRIS™ PEOPLE

Spectrum HoloByte®

A Division of Sphere, Inc., 2061 Challenger Drive, Alameda, CA 94501

Available for Mac/Mac II and IBM

Available in retail stores or for Visa/MasterCard orders call toll free, 24 hours a day, 7 days a week: 1-800-695-GAME (Orders Only)

For technical questions and system requirements call: 1-415-522-1164 (M-F: 9am-5pm PST)

SPECTRUM HOLOBYTE

CIRCLE 145 ON READER SERVICE CARD.

IN THE BEGINNING, IT WAS THE ONLY ONE. IN THE MIDST OF ITS COMPETITORS, IT IS STILL THE ONLY ONE.

Creator



Put your advertising in the hands of a revolutionary graphic design program— Multi-Ad Creator.™

MULTI-AD SERVICES, INC.™

Call today 1-800-447-1950, ext. 354.

See us at MacWorld, Booth #319, Moscone

CIRCLE 64 ON READER SERVICE CARD.

Temporaries Pretrained For Your Data Entry Formats.



Another First From Kelly.

If you have frequent, multiple or long-term requirements for data entry temporaries, our new Kelly® Customizer is ideal for meeting your needs.

By encrypting samples of your data entry screen and data entry forms on our proprietary Kelly Customizer training software, we can now assign you Kelly temporaries pretrained to handle your specific data entry formats.

Your Kelly data entry temporaries arrive on the job ready to work, not just ready to learn.

Call your local Kelly office for details.

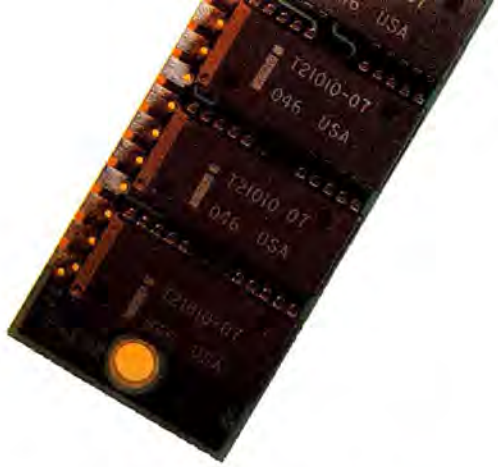
KELLY Temporary Services

The Kelly Girl® People – The First and The Best®

©1991 Kelly Services, Inc.

CIRCLE 166 ON READER SERVICE CARD.

How to Buy Memory

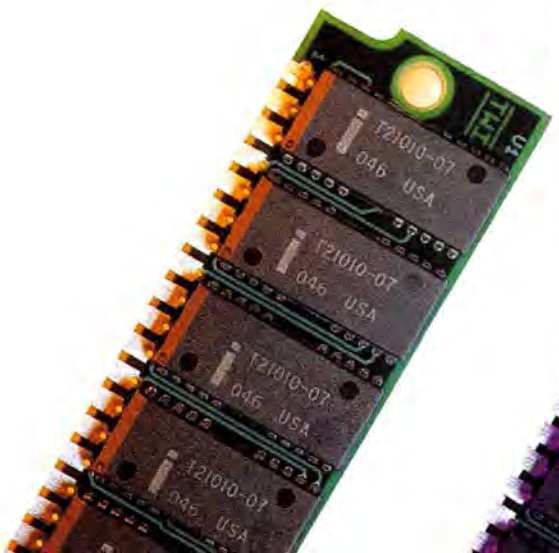


If you're running System 7, you've got a minimum of 2 megabytes of RAM (random-access memory) installed already — but if that's all you've got, you're not able to have more than one big application open at once. The solution is to beef up the amount of RAM available. That's not as daunting as it sounds — lots of mail-order companies sell memory, and prices are getting lower every day. Do a little research before you buy, and in no time, your memory problems will be over. (For more on memory, see "SIMMple Pleasures," April '91, page 194.)

By Victoria von Biel

❗ To add more memory to your Mac, you need to install SIMMs (single in-line memory modules) on the motherboard. SIMMs come in a variety of sizes — 256K, 512K, 1 megabyte, 2 megabytes, 4 megabytes, and 16 megabytes — and speeds — 150, 120, 100, 80, and 60 nanoseconds (the lower the number, the faster the SIMM). The size and speed you need depend on your Mac. As long as you get the minimum speed your Mac can use, you're all right — you can use faster SIMMs, but your Mac just won't be able to make use of the extra speed.

❓ What size and speed do you need? You'll find all the information in Connectix's free booklet *The Macintosh Memory Guide*. Get a copy by calling Connectix at (800) 950-5880 or (415) 571-5100. The *Memory Guide* will also fill you in on the mysteries of virtual memory and 32-bit addressing.



❗ You can install SIMMs yourself, but by doing so, you may void the warranty of some Macs such as the Classics and the PowerBooks. Adding memory to a compact Mac (a Classic, Plus, SE, or SE/30) requires extreme care and use of a special Torx T-15 screwdriver to open the case. If you don't feel comfortable installing SIMMs yourself in these Macs — even if they're no longer under warranty — budget an extra $50 or so to get a dealer to do it.

💲 You can buy SIMMs from your Apple dealer, but you'll pay a lot less if you buy them through a mail-order company. Check the classified ads in magazines such as *MacUser* for brokers, and call large mail-order houses such as MacConnection and MacWarehouse. You can sometimes buy SIMMs directly from the manufacturer as well.

💲 Prices vary widely, depending on whom you call (between $30 and $45 for 1-megabyte SIMMs at press time), but don't automatically go for the lowest price. Compare warranties, support, and quality as well as price.

❓ Ask whether the SIMMs are manufactured with used chips. The chips *may* be of good quality, but they may also have a short life. Such a practice can also indicate a company that's cutting corners and may not be in business much longer.



❗ Ask for SIMMs that are *surface-mounted* rather than *through-hole* — they use less power, create less heat, and are more reliable.

❓ If a company offers a *lifetime warranty* on its SIMMs, find out exactly what that means. Does the warranty apply to the chips *and* the panel? And is it voided if you transfer SIMMs from one Mac to another? Also, a lifetime warranty is useless if the company goes out of business in a year. Ask how long the company has been around — the answer may give you some indication of how stable it is.

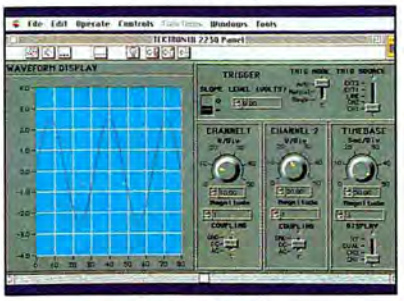
❓ Ask what the company's replacement policy is. Some companies ship out a new SIMM overnight as soon as you contact them; others wait until they've received the defective SIMM from you.

❓ Ask what kind of installation advice you get with your SIMMs. Some large mail-order companies offer videos showing you how to install memory, some send written instructions, and others have telephone-support technicians who will "walk" you through the installation process.

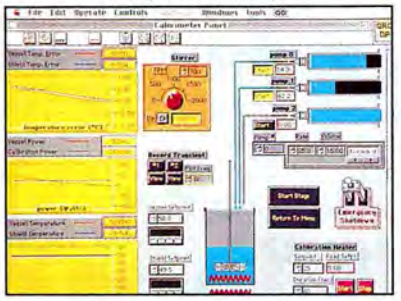


You can automate your system with 30-year old technology, or . . .

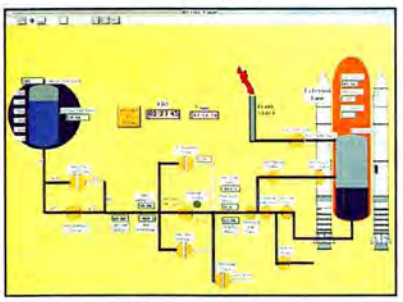
Automated Test



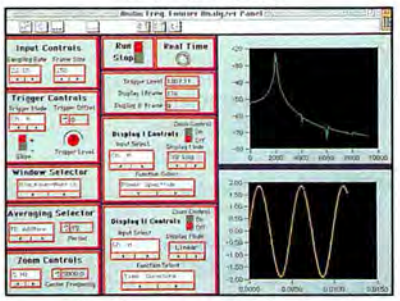
Analytical Chemistry



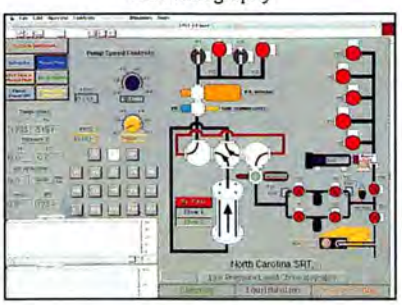
Process Control



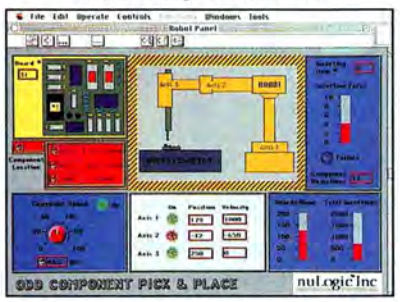
Audio and Vibration



Chromatography



Manufacturing and Production



BRING IT TO LIFE WITH LABVIEW® 2



While PC users wrestle with cryptic text-based programming languages, Macintosh users are getting the job done with LabVIEW 2, the most celebrated application software for data acquisition and instrument control. It recently won the MacUser Magazine Editors' Choice Award. Five years ago, LabVIEW introduced the combination of front panel interfaces and graphical programming. Today, engineers and scientists around the world use LabVIEW 2 and the Macintosh for a broad spectrum of applications.

Unlike other graphical packages, LabVIEW 2 does not sacrifice power and flexibility for ease of use. With LabVIEW 2, you create front panel user interfaces and import pictures to customize your panels. Then you quickly build block diagram programs and add your own blocks to expand upon our libraries. Yet your virtual instruments run as quickly as compiled C programs. Call us to find out how you can bring your system to life with LabVIEW 2.

CIRCLE 177 ON READER SERVICE CARD.

For a free LabVIEW 2 Demo disk, call:
(512) 794-0100 or
(800) 433-3488
(U.S. and Canada)

NATIONAL INSTRUMENTS®
The Software is the Instrument®

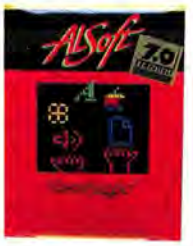
6504 Bridge Point Parkway
Austin, TX 78730-5039

International Branch Offices: Australia (03) 879 9422, Denmark (45) 76 73 22, France (1) 48 65 33 70, Germany (089) 714 5093, Italy (02) 4830 1892, Japan (03) 3788 1921, Netherlands (01720) 45761, Norway (03) 846 866, Spain (908) 604 304, Switzerland (056) 45 58 80, U.K. (0635) 523 545.
Product names listed are trademarks of their respective manufacturers. Company names listed are trademarks or trade names of their respective companies.
©Copyright 1991 National Instruments Corporation. All rights reserved.

See us at MacWorld, Booth #1048

If your new 9,600-bps modem seems slower than it should be, relax — it could be the cable you just bought. Standard modem cables can't handle the hardware handshaking required by those wicked-fast modems, so you get slower speeds and less-reliable data transmission. An inexpensive solution is Celestin's CompUnite high-speed cable, which also works with slower modems. The $14 price includes shipping and tax. (510) 835-0702.

By John Rizzo



They're back: Font and DA managers Suitcase II and MasterJuggler were staple utilities in the System 6 world, but with the death of DAs in System 7, you may have thought you couldn't use them anymore. Not true: You can still use both utilities to store and access sounds and fonts (both Type 1 *and* TrueType), uncluttering your System file in the process. Both products have recently been upgraded to deal with System 7 sounds and TrueType; another important new feature is their ability to automatically resolve font conflicts. Of the two, MasterJuggler has the better interface as well as the lower price, so now might be the right time to make a switch. Look for Suitcase II 2.0 ($79), from Fifth Generation Systems ([504] 291-7221), and MasterJuggler 1.57 ($49), from ALSoft ([713] 353-4090).

Mac, fix thyself: Help!, from Teknosys ([813] 620-3494), is a $149 utility that reports hardware and software problems and recommends solutions; Personal*STATUS, from Pharos ([513] 984-9273), can actually *fix* some of those problems. Personal*STATUS uses artificial intelligence to change preference settings and automatically install current versions of software. It can also tell your facilities manager to fix your hard drive. More importantly, Personal*STATUS is extensible — you can use a HyperTalk-like language to add new information about your Mac, such as bugs you may have found. Price unavailable at press time.



Speed demons: Should those of us with 68030-based Macs upgrade to 68040-based ones? Not necessarily. Preliminary tests show that 50-megahertz 68030 accelerators from Newer Technology, DayStar, and Applied Engineering are almost as fast as the 25-megahertz 68040 of the Mac Quadra and the Radius Rocket and Fusion Data TokaMac accelerators. What's more, the fast 68030 accelerators tend to cost less than 68040 boards do *and* they don't have the software incompatibilities. An upcoming *MacUser* lab report should settle the issue. ✘ For a mere $349, you can accelerate the 68040 processor in your Quadra from 25 megahertz to more than 33 megahertz. Newer Technology's Quadra OverDrive sits in the Quadra's ROM SIMM slot but provides a slot for a ROM upgrade in case Apple decides to provide one (but don't hold your breath — Apple has *never* upgraded a ROM for any model). Why so cheap? The Quadra OverDrive uses your Mac's existing CPU and adds a faster clock chip — a socket on the OverDrive enables even faster clock chips to be added later. (316) 685-4904.



Beyond Cut-and-Paste

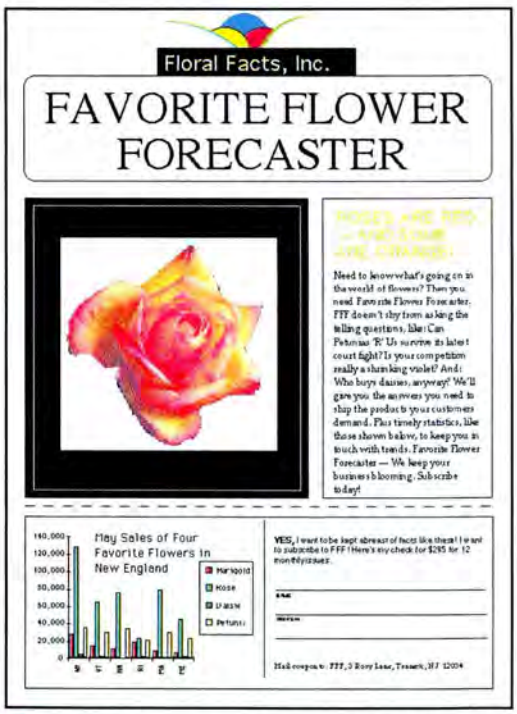
Publish-and-subscribe is the System 7-savvy way to cut and paste. Here's a look at the new technology in action.

By Philip Bishop

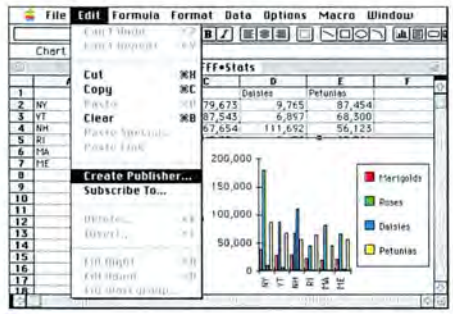
If some of the wonder has worn off System 7 for you, take a closer look at publish-and-subscribe. It may occupy only 8 pages (pages 95 to 102) of System 7's 400-page reference manual, but it's a technique that's bound to enhance your productivity.

Basically publish-and-subscribe is a sophisticated form of cut-and-paste, which lets you move data from one place to another on a one-time basis. Publish-and-subscribe takes this concept one step further by creating a dynamic link between the original data that has been *published* (the cut function) and the copies of it that have been *subscribed* to by different documents (the paste function). Rather than the data's being saved in memory (cut-and-paste's Clipboard), it's saved in the form of a special file called an *edition*.

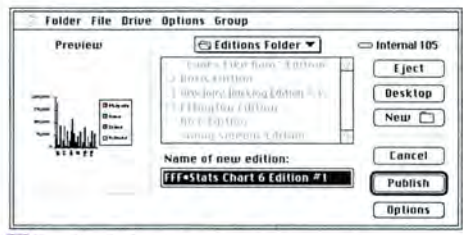
When you change original data — to update a spreadsheet or freshen up a logo, for



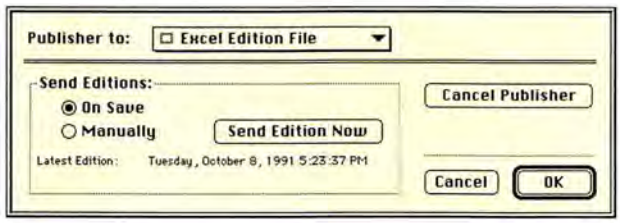
1 The fliers in Figures 1 and 8 were created with Canvas 3.0, with art, text, and charts created in Adobe Photoshop 2.0, Word 5.0, and Excel 3.0. Each month, the staff that produces the fliers uses publish-and-subscribe to update the body copy, photograph, and chart. This series of figures shows how the chart was updated and placed in the latest month's flier. (Note that publish-and-subscribe is implemented slightly differently in each program. See the applications' manuals for specifics.)



2 The process begins with the creation of an original document — in this case an Excel 3.0 chart, showing sales of flowers in New England in May. The chart is selected, and then it is published by use of Create Publisher from the Edit menu.



3 The Create Publisher dialog box — which includes a preview window showing the item to be published — is where you choose various options such as where to store the edition you're about to create (depending on the program). It's a good idea to have a special folder to store editions. If you're working over a network, the edition must be placed on a server or in a shared folder.



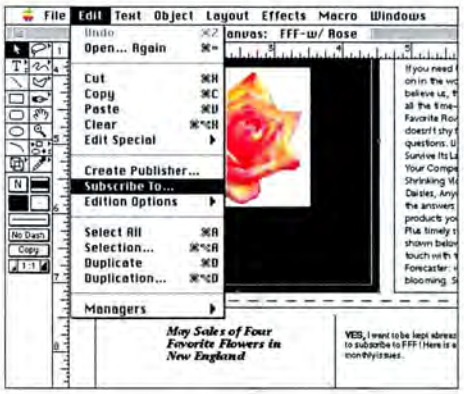
4 The next step is to choose whether the edition will be updated manually or automatically each time you save the original. Manually updating an edition is useful if changes you've made to the original are only partially completed or need to be approved by others. In some programs, this option is on the Edit menu; in Excel, it's accessible via the File menu's Links command.

example — changes are sent to all subscribers to that edition, whether they're across a network or on the same hard disk as the edition. Every subscribed copy is then updated — automatically, if you wish.

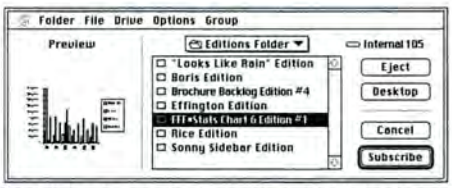
Publish-and-subscribe really comes into its own when it's used by workgroups that need to share an edition file. For example, a company's legal department can change a disclaimer and have it automatically updated in all relevant documents over a network.

The list of programs that support publish-and-subscribe is small; at press time, the major players were PixelPaint Professional 2.0, RagTime 3.1, Canvas 3.0, Excel 3.0, Photoshop 2.0, and Resolve 1.0. QuarkXPress 3.1 and PageMaker 4.02, about to make their appearance, will also support it. By the time you read this, many more programs that can publish and subscribe should be available. And there's already a utility to help you manage your publish-and-subscribe editions: Tactic Software's Traffic Controller keeps track of all your edition files and their relationships to publishers and subscribers.

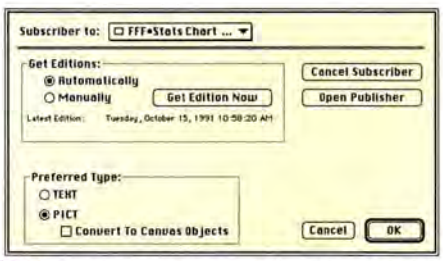
Philip Bishop is a Rhode Island-based graphic designer and writer.



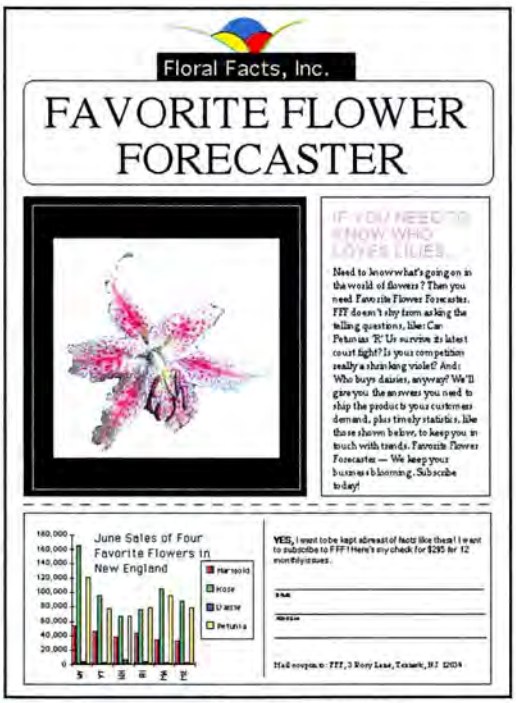
5 Now that the edition has been created, it's time for the subscriber — in this case, the layout department — to join the process. With the host document open in Canvas 3.0, the layout person selects Subscribe To from the Edit menu.



6 A dialog box similar to the Create Publisher dialog box appears, complete with preview window. When you've found the edition you want, select Subscribe, and a copy of the edition file is placed in the document. You can resize it to fit your layout.



7 Like the publisher, the subscriber also has options about whether an edition is updated manually or automatically each time the original is saved. The date and time of the last update are included to help you keep track of events.



8 In the final step, everything comes together. In Photoshop, the published rose of the last flier is updated by being replaced with a picture of a lily; in Excel the statistics are replaced with new ones (use the Save As command if you want to keep a copy of the old statistics) and a fresh chart is generated. Word 5.0 is used to create a new headline and body copy. Each edition file is updated whenever it's saved, unless the document is to be updated manually. The moment the publisher saves these changes, all the subscribers are automatically updated. (Alternatively, subscribers can manually update files, in which case any waiting changes are applied.)

TECHWORKS™

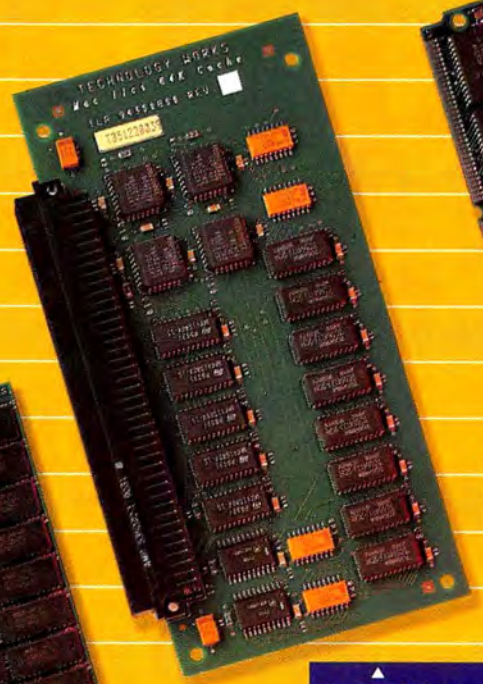
TechWorks™ memory products are the world's best. Each is designed, engineered, and built by bizarre, monomaniacal perfectionists in a controlled environment at our own facility. And we're one of the few major companies building the more reliable surface mount design. Because of this, we can warranty each part for life, price them far below comparable products, and offer toll-free access to our technoids for knowledgeable technical support or science fiction trivia. So call toll-free for today's prices and take your Mac® to the max for System 7.0. Lifetime warranty, 30-day money-back guarantee, free installation kit, and toll-free support service are included. Corporate PO's accepted, all major credit cards honored, plus overnight delivery and volume discounts are available. Facsimile orders: 512-794-8520. Technical Support: 800-933-6113. Business line: 512-794-8533.

PowerRAM.

Call today for price and availability on TechWorks' PowerRAM™ 2MB, 4MB & 6MB for Apple's® new PowerBooks™!

Model	SIMM sizes available			
	1 MB	2MB	3MB	4MB
Macintosh Plus	•			•
Macintosh SE	•			•
Macintosh SE/30	•			•
Macintosh II	•			•
Macintosh IIx	•			•
Macintosh IIcx	•	•		•
Macintosh IIci	•			•
Macintosh Classic	•	•		•
Macintosh LC	•	•		•
Macintosh IIsi	•			•
Macintosh IIfx	•	•	•	•
Macintosh Portable				

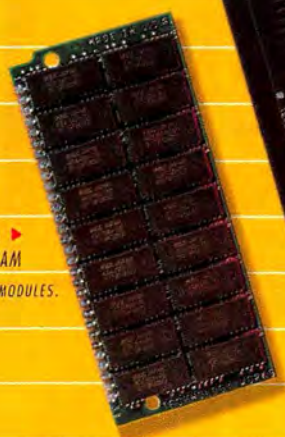






LC 512K VRAM - Graphic enhancement for Mac LC. Displays more colors simultaneously.

Expand your IIfx or IIci to a total of 128 megabytes of RAM with TechWorks' new 16MB modules.



IIci PowerPAC - Make your IIci scream! Cache Card plus 16MBs (four 4x8's) of memory. Special $750! Hurry, limited quantities available.

LIFETIME WARRANTY ™

TechWorks, Inc., 4030 Braker Lane West, Suite 350, Austin, Texas 78759-5319. Technology Works and TechWorks are trademarks belonging to Technology Works, Inc. All other trade names referenced are the proprieta service mark, trademark or registered trademark of the respective manufacturer.

Test Drive our Products at MacWorld, San Francisco–Moscone Center, Booth 104

TOLL FREE DIRECT **800-866-2785**

Circle 105 on reader service card.

Blessed Events

Lurking beneath the surface of System 7 is interapplication communication, and it's about to revolutionize the way you use your Mac.

By Bob LeVitus



Interapplication communication (IAC) is no big mystery. As its name suggests, it's a technology that lets programs "talk" to one another. It's one of the best things System 7 has to offer, but because it's almost invisible without third-party programs to unleash its power, it's one of the system's least-understood and least-known features. IAC capabilities are buried deep within the system software, so don't go looking for it on a menu in the Finder or in your System Folder. It's there, though, running silently behind the scenes, waiting patiently for third-party software to come along and put it to work.

System 7 has a powerful built-in protocol called *Apple events* for sending and receiving IAC messages. This protocol lets programs communicate with one another. (To make things more confusing, the messages sent among programs are also called Apple events.) In order to take advantage of Apple events — the protocol *and* the messages — programs must be written (or rewritten) so they understand these messages.

Programs can have varying degrees of support for Apple events. To get the highest rating (to be *System 7 savvy*), a program must include, at the very least, four required Apple events — Open Application, Open Document, Print Document, and Quit Application. Beyond that, an application might support Apple events for the Cut, Copy, Paste, Save, Undo, Redo, and Revert commands and so on. More-ambitious programs contain Apple events for many other features. I recently saw a prerelease version of the animation program ProMotion, from Motion Works, that contained Apple-event support for *every* menu item, dialog box, and tool in the program. What does that mean? Simply that you can control any aspect of ProMotion externally, using macros or scripts created with such programs as CE Software's QuicKeys 2, Affinity Microsystems' Tempo II Plus, or UserLand's Frontier.

IAC technology is most commonly seen in publish-and-subscribe, sometimes referred to as *live copy and paste,* which lets applications dynamically share almost any information. This means that when information is changed in the original (the *publisher*), it's changed (automatically, if you wish) in all the copies of that information (the *subscribers*), wherever they are. Updating can even take place over a network. Publish-and-subscribe is one IAC application that's available now. For more on how publish-and-subscribe works, see "Beyond Cut and Paste," elsewhere in this issue.

The Microsoft Way — Olé!

Microsoft has developed a technology that's similar to IAC, called OLE (Object Linking and Embedding). OLE uses Apple events to enable applications to appear not as separate applications but as new features of other applications. For example, Word 5.0 includes a separate equation-editing application. If you create an equation and then paste it into a Word document, it will automatically be linked to the

PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

For Fast Service Call Toll Free, 1-800-825-6690

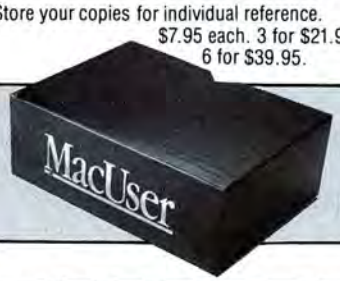
MAGAZINE BINDERS

Hold your issues on individual snap-on rods. $9.95 each. 3 for $27.95. 6 for $52.95.



OPEN BACK CASES

Store your copies for individual reference. $7.95 each. 3 for $21.95. 6 for $39.95.



MacUser
c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134

Please send me: Quantity_____ ☐ Binders ☐ Cases
Payment by check or money order enclosed for $_____.*

Add $1 per case/binder for postage and handling. (Outside USA, add $2.50 per case/binder ordered, US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order $15).

Card No._____ Exp. Date_____

Name_____

Street Address_____
Sorry we cannot ship to P.O. Boxes. Thank you.

City_____ State_____ Zip_____

*PA residents add 6% sales tax.

BEATING THE SYSTEM

equation-editing application. If you need to modify an equation, you simply double-click on the equation in your word-processing document. The equation editor launches, and the equation appears in its window, ready for editing. When you've finished editing it, you choose Update from the equation editor's File menu and the equation you pasted into your word-processing document is automatically updated. The same equation editor can be used similarly with Excel 3.0.

Although Microsoft invented OLE and will include it in many of its products, other developers can easily implement OLE in their applications. And similar program-linking techniques based on Apple events are showing up in other manufacturers' programs. For example, Aldus' PageMaker 4.2 has hot links to FreeHand 3.1 (also from Aldus) — when you double-click on FreeHand art in a PageMaker document, FreeHand automatically launches.

System 7-Savvy Software

Unfortunately, there aren't many IAC-capable programs around — yet. The good news is that by the time you read this, there should be more. Most developers I've talked to recently are planning to include at least minimal Apple-events support in their products. Publish-and-subscribe is just the tip of the iceberg, however. What I find interesting are the several products that should now be available that let you control Apple events within programs from macros or scripts. At this stage, key players are CE Software's QuicKeys 2, Affinity Microsystems' Tempo II Plus, Simple Software's Control Tower, and UserLand's Frontier. QuicKeys 2.1 (which supports Apple events) has been available since mid-1991, and I've played with prerelease copies of Control Tower and Frontier. Here's what you can expect from these products.

QuicKeys 2.1 supports several Finder events, such as Show Clipboard, Get Info, Open, and Print. The Open command is particularly powerful — it lets you open anything you can see in the Finder — folders, documents, applications, DAs, and control panels. It's also capable of sending Apple events to any application that supports them and allows you to include Apple events in your macros. When applications begin to support Apple events more thoroughly, you'll be able to use QuicKeys to send data to them, manipulate the data within those programs, and then send it somewhere else. CE Software ([515] 224-1995). $149.95.

Affinity Microsystems promises that the System 7-savvy version of Tempo II Plus (version 2.1) will both receive *and* issue Apple events. Apple events will be able to "play" Tempo — record macros,

The System 7 File: Firing the Finder

For those who're still playing with ResEdit after last month's column ("ResEdit 101," page 207), here's one more tip to hone your resource-editing skills. It was contributed by Derrick Schneider, the editor of the BMUG's ResEdit guide, *Zen and the Art of Resource Editing.*

Although it's true that System 7 can run on a 2-megabyte Mac, you won't have room in memory to run much else. Here's how to make the Finder quit when you're running an application, thus freeing up (approximately) 300K of RAM:

1. Make a copy of the Finder. (Never use ResEdit on an original file.)

2. Launch ResEdit, and open the copy of the Finder file.

3. Double-click on the fmnu resource.

4. Double-click on ID 1252. This will bring up a window filled with arcane text and numbers.

5. Scroll to the bottom of the window. Click once to place your cursor just to the right of the characters 016D.

6. Type 7175 6974 8100 0000 0451 7569 7400 (ResEdit automatically inserts the spaces for you).

7. Scroll back to the top of the window. In the upper left corner, you'll see 000000 and, just to the right of that, 0001 0011. Change 0011 to 0012.

8. Save the changes, and quit ResEdit. Move the edited copy of the Finder file into your System Folder (you may have to boot from a floppy to do this), and then restart your Mac. The Finder now sports a Quit command.

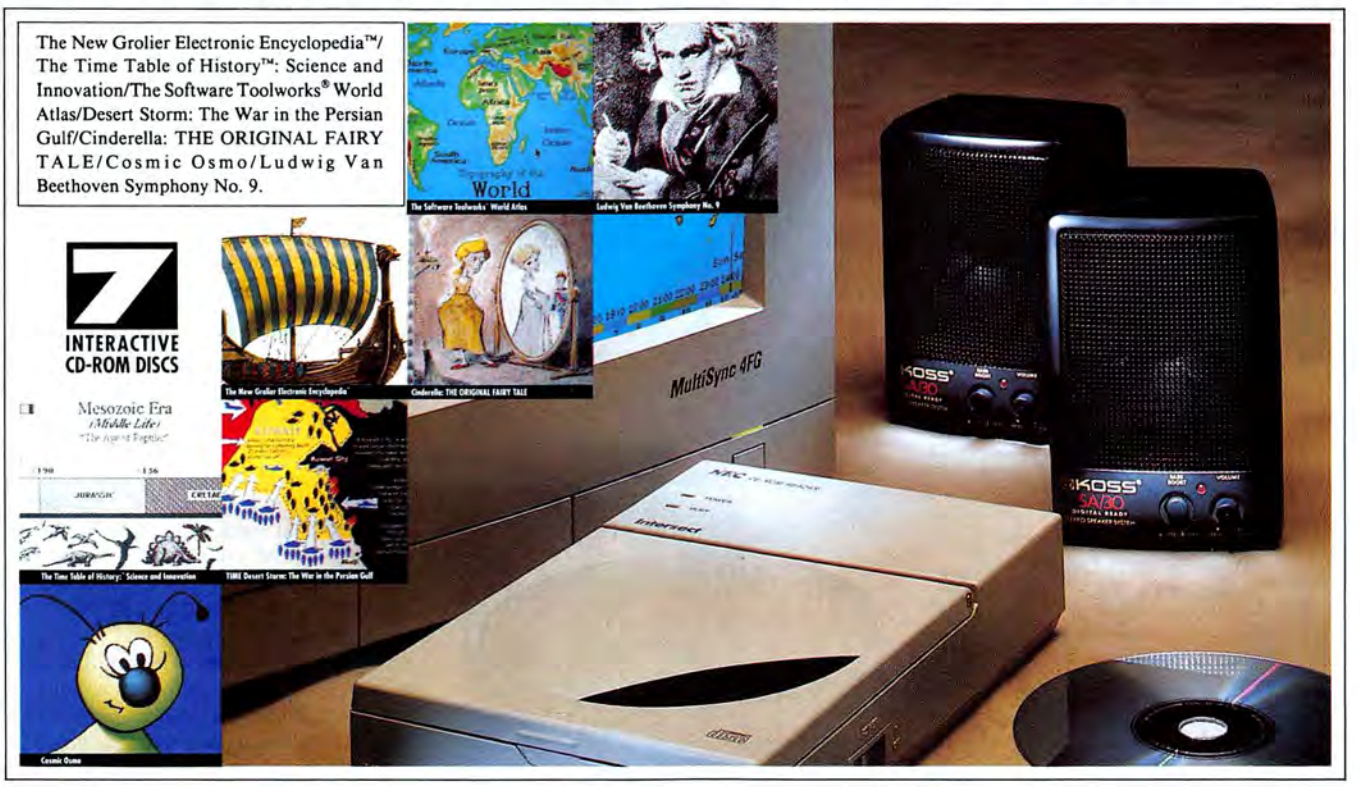
Note: There *are* a couple of drawbacks to adding this command — mainly that you'll lose your Apple menu. You'll still have the apple and probably the About menu item, but you won't be able to see any of the other goodies on that menu. The other major annoyance is that the only way to get the Finder running again is to quit all open applications. If you try to quit when no other application is open, the Finder will simply restart itself.

Food for the senses at a price that makes sense: $699*

Introducing CD Gallery.™ The Interactive CD-ROM System from NEC.

Is this the offer you've been hungry for? Cash in big on the sensational world of CD-ROM with seven exciting software titles for Macintosh with all the necessary hardware including the amazing NEC CDR-36 CD-ROM reader, KOSS® SA/30 amplified stereo speakers, and even stereo headphones, all for just $699.* Or, if you want to upgrade to an NEC CDR-73, one of the fastest readers on the market, it's just $999.* And it's all incredibly easy to set up and use. But don't chew on this offer too long because supplies are limited. Call 1-800-NEC-INFO for the nearest authorized NEC dealer to find out where you can pick up the ultimate feast for your mind.

*Manufacturer's suggested retail price, actual price may vary, call your dealer for actual pricing. Other versions available for IBM PC and 100% compatibles. © 1991 NEC Technologies, Inc. CD Gallery is a trademark of NEC Technologies, Inc. The New Grolier Electronic Encyclopedia is a trademark of Grolier Incorporated. The Software Toolworks is a registered trademark of The Software Toolworks, Inc. Time Table of History is a trademark of Xiphias, Inc. Macintosh is a registered trademark of Apple Computer, Inc.



Because ⬆ is the way you want to go. NEC

C&C Computers and Communications

CIRCLE 144 ON READER SERVICE CARD.

play macros, adjust Tempo configurations, and so on. And Tempo macros will be able to issue Apple events to control applications or to reply to Apple events that called them, so a script will be able to call Tempo and Tempo will be able to call a script. In addition, scripts will be able to assign processes to another Mac on the network. This sounds like a very cool feature. If the first Mac is busy, it can try a second one, and so on, until a free machine is found.

This *distributed processing* can be used to run lengthy jobs overnight, with several machines rather than just one. Affinity Microsystems ([303] 442-4840). $169.95.

Control Tower and Frontier are examples of a new breed of scripting software made possible by the availability of IAC in System 7. They differ from macro programs in that you write text-based scripts to control Apple-event processes.

Control Tower is the easier to use of the two. It lets you create at least part of your script by using a straightforward point-and-click interface. You create scripts of Apple events by selecting an application to send the Apple event to, choosing a specific Apple event within the target application, and then specifying the data to be sent along with the Apple event. Simple Software ([415] 381-2650). Price not available at press time.

Frontier is a much more powerful scripting program. In addition to giving you full script control over programs that support Apple events, Frontier can script and control almost every aspect of the operating system, including parts that don't respond to Apple events. The Finder has built-in Apple-event support for activities such as printing, emptying the Trash, and duplicating. All the macro and scripting programs I've mentioned can already script these functions, but Frontier goes beyond this by automating such actions as moving, renaming, searching for, gathering, deleting, and creating aliases. And it's smart about it: Because Frontier is a programming language, it can use logic, which lets it discern whether a file, a folder, or a folder full of files meets your criteria and then act on only the files that do.

Such power has a price, of course. Scripting in Frontier is not for the faint of heart — in fact, it's a lot like programming. On the other hand, Frontier is designed to let others write the scripts for you. UserLand expects to ship more than 100 scripts with the program, most of which will be useful without modification. UserLand Software ([415] 325-5700). Price not available at press time.

Although IAC technology is still in its infancy, it's pointing us toward a multitude of options for automating tasks on the Mac. As the technology matures, you'll spend less time on routine chores and more time being truly productive. I think you're going to like it.

Bob LeVitus is the author of *Son of Stupid Mac Tricks* and *Dr. Macintosh* (second edition).

Put an end to software piracy!

Meet the growing family of security keys from Software Security.

Each one a specialist at enforcing your license agreement in virtually any user environment you can think of. Whether it's DOS, UNIX, Macintosh or OS/2...whether it's a single user installation or a LAN.

Simply connect the appropriate key to a single user computer, or a non-dedicated file server in a network, and you control all access to your protected application.

Users, however, won't even know it's there. The keys are transparent and won't impact software functionality or the ability to make back up copies. Normal node and LAN operations are unaffected.

Simple. Unassuming. Ever vigilant. Easy to incorporate into your application package. And quite possibly the most profitable hardware investment a software developer can make.

Call: **1-800-333-0407**
IN CONNECTICUT CALL: 203-329-8870
FAX 203-329-7428
EUROPE AND UK: +44 784 43 00 60

SOFTWARE SECURITY INC.
1011 High Ridge Road
Stamford, CT 06905
Proudly Made in the USA

COME SEE US AT MACWORLD, BOOTH #433

THE ULTIMATE PROTECTION FOR SOFTWARE PUBLISHERS

NOW AVAILABLE! NETWORK PROTECTION WITH REMOTE UPDATING!



All product names are trademarks or registered trademarks of their respective holders.

CIRCLE 146 ON READER SERVICE CARD.

ZiffNet/Mac

is the 24-hour on-line resource for MacUser *and* MacWEEK. *For the latest news, reviews, and electronic supplements, log on today. ZiffNet/Mac (also known as Zmac) is available on the CompuServe Information Network. You can connect to us by typing GO ZMAC on CIS or by following the instructions under "How to Join ZiffNet/Mac." Here are some of this month's ZiffNet/Mac highlights.*

CacheOut Takes the Crash Out of Quadra

Apple's new Quadra was built for speed, but many established applications, including Microsoft Word 4.0, don't fare well with the new superfast 68040 processor. The problem is with the cache. Recognizing this, Apple shipped a utility called Cache Switch to turn the cache off, but you have to reboot to activate the option. ZiffNet/Mac has developed a better cache-control utility, CacheOut, which doesn't require you to reboot. CacheOut controls the 68040's caches dynamically, switching them on for speed and off for compatibility as you start applications and exit from them. The utility lets you run incompatible applications such as Microsoft Word 4.0 when you need them, but it switches the caches back on for full performance when you quit the application. CacheOut is available exclusively on ZiffNet/Mac in the Download & Support Forum, Library 3 (INITs, cdevs, FKEYs); the filename is CACHEO.CPT.

Handling the Handlers

HyperCard maven Danny Goodman reveals the hidden secrets inside the Home stack in this month's Power Programming stack, available on ZiffNet/Mac. These innovative scripts can aid you in stack design by providing shortcuts to common commands. As a bonus, the ZiffNet/Mac stack has custom scripts from Goodman's own Home stack. HyperCard Handlers has the filename HCHAND.SIT and is available in ZiffNet/Mac's Download & Support Forum, Library 6 (Stackroom).

Zmac Changes Name, Not Stripes

Zmac is expanding its name to ZiffNet/Mac to reflect the launch of our sibling service, ZiffNet. ZiffNet serves the Ziff-Davis family of DOS and Windows magazines — *PC Magazine*, *PC/Computing*, and *PC Week*. ZiffNet/Mac is the electronic link to Ziff-Davis' Mac publications. You'll still see the abbreviated name Zmac, and more importantly, you'll still get an exclusively and distinctively Macintosh on-line service. So if you're on the CompuServe Information Service, you can GO ZMAC or you can GO ZIFFNET/MAC. Either will take you to the exclusive service that puts you in touch with *MacUser* and *MacWEEK*. If you're not on CIS and would like to be, you can follow the sign-up instructions below to log on.

How to Join ZiffNet/Mac

Here's how you can get access to ZiffNet/Mac:
•If you're a CompuServe (CIS) user, just type GO ZMAC at any ! prompt.
•If you're not a CIS subscriber, you can sign up for ZiffNet/Mac by following these directions:
1. Call (800) 635-6225 or (614) 457-8600 to find your local access number.
2. Set up your modem and telecommunications software with the following standard Mac settings: 8 bits, 1 stop, and no parity.
3. Dial your local access number. When connected, press Return. You'll see the following prompts on-screen. Your responses are printed in boldface type.
Host Name: **CIS**
User ID: **177000,5200**
Password: **Z*MAC**
Agreement Number: **Z12D9014**
4. You will then be prompted for additional information, including a credit-card number for billing purposes. If you cannot bill to a credit card, call the CompuServe customer-support line listed below. Sign-up is free, but normal access time is billed at $12.50 per hour.
5. Call CIS again with your user ID and password. A new password will arrive in the mail within ten days.
For more information, call CompuServe customer support at (800) 848-8990 or (614) 457-8600.

CIRCLE 200 ON READER SERVICE CARD.

"Some People Don't Picture Me Living A Full Life."

— Patricia Saunders



I have a disability, but I live life to the fullest. I not only support myself, but I stay active outside the office, educating people about disabilities. Like 43 million other disabled Americans, I am eager — and able — to contribute to community life.

But it's not easy; our communities are filled with obstacles. Every day, people with disabilities are barred by seemingly insignificant things, like curbs, stairs and narrow doorways. And the biggest hurdle of all is invisible — discrimination.



These barriers prevent people with disabilities from participating in all aspects of life, including employment, recreation and education. The irony is that we have so much to offer. We have the skills, intelligence and creativity that most people do; we just happen to use a wheelchair or a guide dog or a hearing aid.

Help us open opportunities. Get involved in Jim Brady's Calling on America campaign. It's easy. Anyone can join or start a local campaign. Here's a sample of what you can do in your area:

- Make sure businesses, churches, restaurants, theaters and motels are fully accessible
- Provide disability awareness training for employees and supervisors
- Organize a job fair; work with employers to increase job opportunities for people with disabilities
- Increase enforcement of handicapped parking ordinances
- Work with elected officials for fully accessible polling places
- Work for fully accessible public transportation



Make your town an equal opportunity community. Give people with disabilities a chance, and we'll show you what we can do.



☐ **Yes,** Jim. I support your Calling on America campaign. I am willing to get involved in my community. Send me a free campaign guide.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

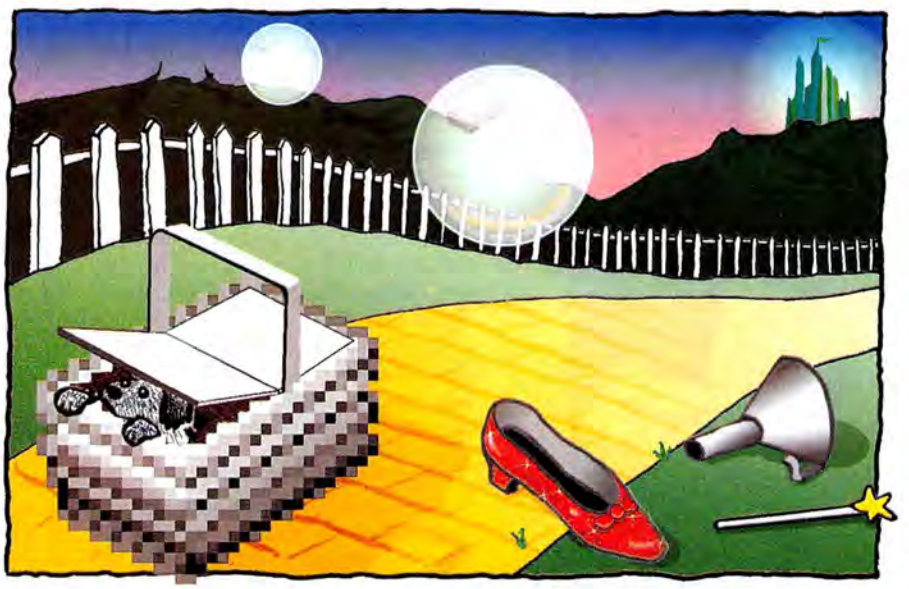
Telephone: _____

Mail to: Calling on America, National Organization on Disability
910 16th Street, NW, Washington, DC 20006.

No Place Like Home

There's buried treasure in the Home stack for HyperCard authors willing to do a little digging.

By Danny Goodman



If you're not an experienced HyperCard author, you may not be aware of the usefulness of HyperTalk handlers, especially those in the Home stack. A script is divided into individual handlers, each of which is a miniprogram of its own, and the many helpful handlers in HyperCard 2's Home stack can be accessed for use in all other stacks. Most of these handlers are shortcuts you can type into the message box to trigger a lengthy process such as changing the default font in script-editor windows; others are useful utilities that aid stack design and maintenance.

In this article, I'll show you several handlers that are common to both the full and bundled versions of HyperCard. And if you'd like tips on adding your own handlers plus a couple of handlers that I've added to my Home stack, you can download a file containing them from Zmac (*MacUser*'s on-line service).

Getting Quick Info

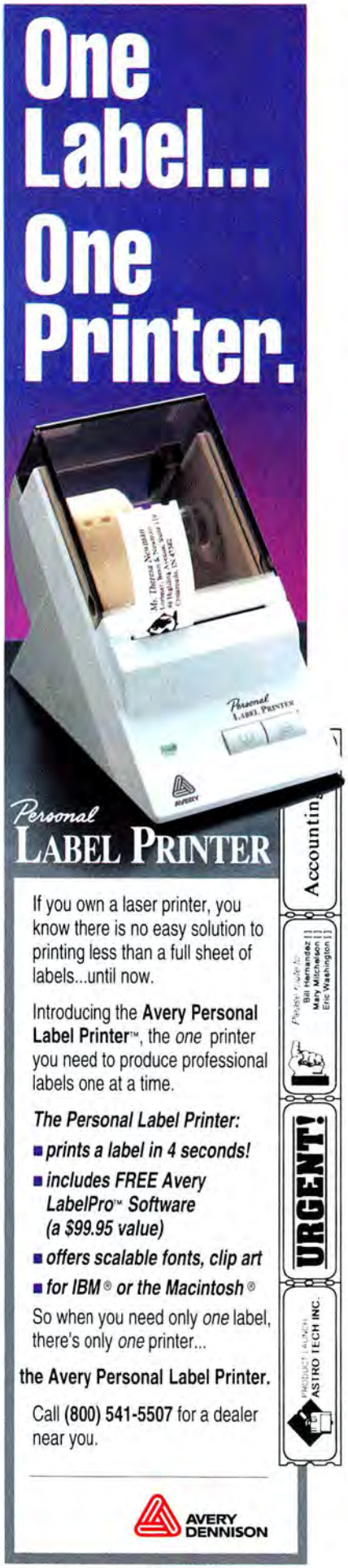
You can set several properties for stacks, backgrounds, and cards via the Stack Info, Bkgnd Info, and Card Info dialog boxes, respectively, which you access through the Objects menu. However, there's a quicker way of accessing these dialog boxes, using handlers. First, access the message box via the Go menu (Command-M); type the letters `s` (for stack info), `b` (for background info), or `c` (for card info); and then press Return or Enter.

The Stack Info shortcut handler (see Example 1) does a great deal more than issue an equivalent `doMenu` command. Instead, it summons help from two other handlers in the script — `setUserLevelFive` and `restoreUserLevel` — and then returns you to the precise tool and `userLevel` settings you were using when you requested the object's dialog box.

For experienced stack authors, this may seem like overkill, because your `userLevel` is probably already set to 5 (the Scripting level) and you're quite adept at choosing tools in the Tools palette. But if you're a beginner, these commands are helpful — they let you do what you want and then return you to your previous `userLevel`.

Where in the Window?

A utility handler I often use to measure pixel counts for layouts is the `xy` handler, which is particularly useful if you're doing animation work that might require precise starting and ending coordinates. To start the handler, type `xy` into the message box and press Return or Enter. The cursor turns into a cross hair, and the message box displays coordinate information about the center spot of the cross-hair cursor. A repeat loop in the handler keeps showing you the cursor's *x,y* coordinates in the format accepted by several HyperCard-object properties as well as which coordinate is vertical and which is horizontal. To stop the loop, simply click the mouse button — the cursor coordinates at the mouse-click location remain in the message box.



CIRCLE 57 ON READER SERVICE CARD.

Example 1: Stack Info Handler from the Home Stack

```
on s
  put the tool into saveTool
  choose browse tool
  setUserLevelFive — another Home stack handler
  doMenu "Stack Info..."
  restoreUserLevel — put things back
  choose saveTool — ditto
end s
```

Notice that if you drag the activated *x,y* cursor above or to the left of the window, the corresponding coordinates turn negative. The coordinates — like locations and sizes of all objects inside a HyperCard window — are relative to the window, not the screen. Also, the zero point for a window is the upper left corner of the active window area, not the window's title bar.

Neat Navigator Palette

To demonstrate HyperCard 2's palette feature, the Home stack includes the requisite resources (types PICT and PLTE) and message-box shortcut to display what is known as the Navigator palette (see Figure 1). The buttons in this palette are the same as the commands in the Go menu and are an example of what authors can use palettes for — replacing a menu or saving space on stacks written for use on small screens, for example. To access the Navigator palette, type **nav** into the message box and press Return or Enter.

Palettes in HyperCard float in a different window stratum from that of card windows — palettes always stay on the top level, and card windows are in what I call the *document-window domain*. Within that domain, you can shuffle several HyperCard windows in any order while the Navigator palette in the *palette-window domain* stays in front of the HyperCard windows. To accommodate this, one of the buttons on the Navigator palette replicates the Window command, letting you cycle through open HyperCard windows while keeping the palette in front. Note that windows in the palette domain are hidden when you switch from HyperCard to another program under MultiFinder or System 7.

We're Watching

Two helpful HyperTalk debugging windows — Message Watcher and Variable Watcher — are not normally available unless you get the HyperTalk debugger running (this happens after you've encountered a script error, set a debugging checkpoint, or typed Option-Command-. while a script is running). Once the debugger is going, menu choices in the Debug menu (the one with the bug icon, of course) let you view either or both watcher windows.

The Message Watcher window, in particular, gives you an X-ray view of the inner workings of scripts as they run. As a handler churns, a list of all the messages being executed appears in the Message Watcher window. This is often a valuable debugging tool *without* the debugger — showing you duplicate executions of handlers in complex scripts, for example. The Variable Watcher window is especially helpful when you're not stepping through a debugger-controlled handler, because it shows you the state of all global variables when no scripts are running.

If you want to see either of these watchers independently of the debugger, simply type **mw** (for Message Watcher) or **vw** (for Variable Watcher) into the message box and press Return or Enter. These two handlers perform no black magic — both the Variable and Message Watcher windows are opened when you start HyperCard but are hidden until you ask to see them. These handlers simply show their respective windows, but with far fewer keystrokes than typing the full commands (`show window "Message Watcher"` and `show window "Variable Watcher"`).

Find That Script

In the original HyperCard Home-stack script, there was a practical utility handler that helped scripters slice through the scripts of all objects in a stack in search of any word or phrase. That handler, `searchScript`, has been enhanced in HyperCard 2, and it now comes with its own shortcut handler, `ss`.

The `searchScript` (or `ss`) command requires one parameter and accepts a second. The first parameter is the text, in

quotes, for which the handler should search all object scripts. As an optional second parameter, you can also include the name of a stack to search, in case you want the search to be in a stack other than the one you're currently in. If you don't specify a stack, the handler will search only the current stack.

The **ss** handler is simply a shortcut to the **searchScript** handler. In fact, all **ss** does is call **searchScript**, passing along any parameters you've given the **ss** command.

Don't be alarmed by the apparent length of the **searchScript** handler. The bulk of its work is performed inside two repeat loops — one for backgrounds and their objects, another for cards and their objects. As the handler twirls away, it systematically looks into the script of each object in the following order: stack, background, background buttons, background fields, card, card buttons, and card fields. When the text is in an object's script, the handler opens the script-editor window to display that object's script.

However, **searchScript** does not control search behavior once the script-editor window opens — that's up to you. Fortunately, behind the scenes, the handler also puts the search text into a global variable called **ScriptFindString**. The script editor normally uses this variable to remember the last search performed inside a script. If you choose Find from the script editor's Edit menu (Command-F), you'll see your search text already entered for you. This means that when running **searchScript**, you can bypass the Find dialog box and simply choose Find Again (Command-G) to look for the match.

When the script-editor window opens, you also won't know how many instances of your search text exist in the current script. Keep pressing Command-G until you hear a beep, indicating that the entire script has been searched (unless you've turned on Wraparound Search in an earlier script Find dialog box).

Once you've examined your search text and made any changes to the script, the most efficient way to let **searchScript** continue its pursuit is to press the Enter key. Doing so saves changes to the script, closes the object's script, and lets the handler carry on searching in other scripts.

Script-Editor Fonts

Believe it or not, you're not restricted to 9-point Monaco as the font for HyperCard script-editor windows. HyperCard 2 includes adjustable script-editor font and size properties — **scriptTextFont** and **scriptTextSize**. A Home-stack shortcut handler reduces the long typing required to change these attributes to a simple matter of filling out a pair of dialog boxes. To start the handler, type **se** and press Return or Enter.

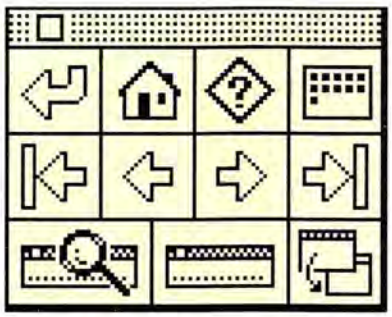


Figure 1: You can use a handler to access HyperCard's Navigator palette, which contains the same commands as the Go menu. This is just an example of what you can do with palettes — you can create similar palettes to replace a menu or conserve screen space.

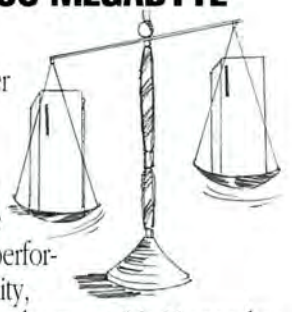
Without using fancy dialog boxes with pop-up lists of fonts and sizes, this handler displays two HyperCard **ask** dialog boxes, which require you to type the full name and size of the font you want. The next script-editor window you open will use the new font. If you want to permanently change the font for your script editor, you can add some lines to the Home-stack script's **getHomeInfo** or **startup** handlers to automatically set font and size properties each time HyperCard starts up.

The possibilities for adding Home-stack utility handlers to your stacks are endless, and you can easily shape your authoring environment with a few additions of your own. I've put together some tips on adding handlers to your scripts as well as some examples from my own scripts, which you can download from Zmac — look for the filename HCHAND.SIT in the MacUser Forum's Library 3 (Utilities). Or send your request (include the article name) and a check ($5 in North America, $10 outside North America) to Concentrix Technology, Inc., 1875 S. Grant Street, Suite 760, San Mateo, CA 94402.

Danny Goodman is the author of *The Complete HyperCard 2.0 Handbook* and cofounder of Concentrix Technology, maker of the Connections personal-information manager.

MacUser
MEANS BUSINESS
COMING SOON:

40 BIG 200 MEGABYTE DRIVES



In this MacUser Labs Report, 40 different 200 Megabyte hard drives are evaluated for performance, durability, price, service and support. MacUser makes buying a hard drive a whole lot easier.

SHARING THE NEWS ON APPLESHARE



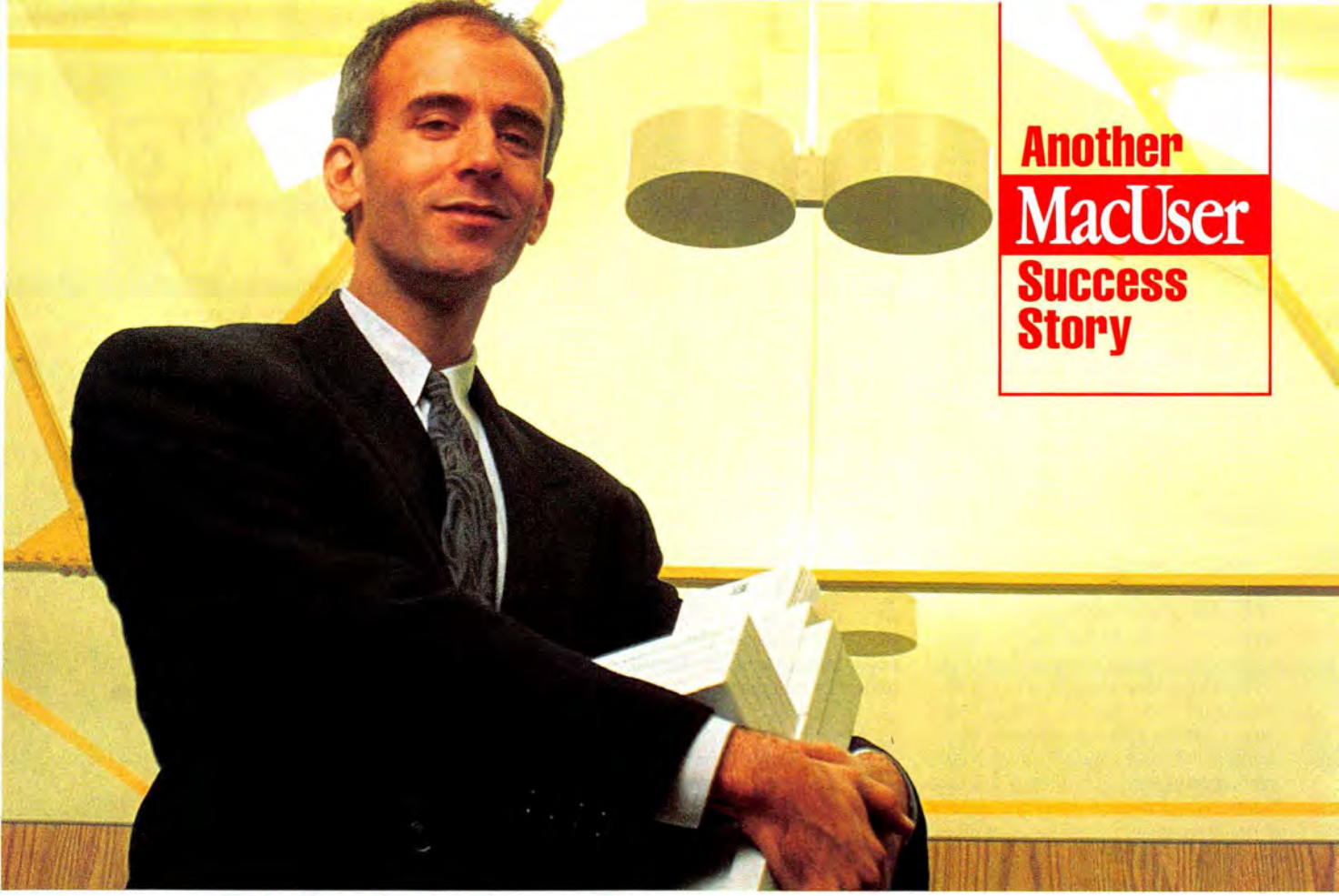
MacUser unveils the long-awaited AppleShare Version 3.0 — and the diligent MacUser Labs puts it through more than its share of tests. Yes, buyers will share this issue all through the year!

MAKE WAY FOR E-MAIL GATEWAYS



A detailed look at the benefits of E-Mail gateways and how they work. Plus, a complete directory of manufacturers. MacUser is the gateway for business buyers.

APRIL AD CLOSE: Wednesday January 29, 1992



Another MacUser Success Story

Andrew Newmark, Chairman, CoStar

MacUser plays the lead for CoStar

"Since we started CoStar two years ago, our goal has been to eliminate unnecessary problems around the office. Labels and envelopes being the first priority, our LabelWriter and AddressWriter have each become something of a hit.

"These products are obviously business products, and we chose the Macintosh market for our debut. That wasn't any compromise: the Mac's acceptance by business is enormous. Which is why we're doing so well.

"We can't afford to waste any money. When we first started advertising a year ago, we advertised in both Macworld and MacUser. We found that we got the best leads out of MacUser. So we decided to stick with the publication that gives us the most sales.

"Converting MacUser leads to sales has been great. I give half the credit to the products themselves, and half the credit to the medium we're advertising in. The MacUser audience is buying a lot of our products.

"Label and envelope printers are targeted to business. Since a high percentage of our customers come to us from MacUser, it makes sense that MacUser is being read by corporate America.

"I think the right people are contacting us through MacUser—the repeat customers. We've gotten better responses with MacUser, so for our money that's where we're going to keep advertising.

"You can read all the research you want, but success is measured in the sales you get. That's why we advertise in MacUser."

MacUser
MEANS BUSINESS



Do you have an undocumented Macintosh tip you're willing to share? MacUser *pays $25 for every tip used, and the Tip of the Month earns $100.*

✉ *Send your tip, together with your name, address, and phone number, to Tip Sheet, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404.*

You can also contribute tips electronically via Zmac, the on-line service for MacUser. *Send them to Gregory Wasson at 72511,36. Be sure to include your full name and mailing address along with the text of the tip.*

Compiled by Gregory Wasson

Desktop: System 7

If you've upgraded to System 7, you can save many kilobytes of space on your hard disk by deleting your old Desktop file with a package such as CE Software's DiskTop. Alternatively, you can make the normally invisible Desktop file visible with ResEdit and then just drag it to the Trash. Be careful, however, that you don't delete the files Desktop DB or Desktop DF. These are the files System 7 uses instead of the single Desktop file used by previous systems. (Note: If you frequently switch between System 6 and System 7, don't delete the old Desktop file or you may find yourself waiting three or four minutes for your hard drive to mount when you start up with System 6.)

Sven Nielsen
Saratoga, CA

QuarkXPress 3.0

Normally, the first page of a QuarkXPress document has to be a right-hand page, but you may want to set up your document so that the first page is on the left—you may, for example, want to print a publication's back cover to the left of the front cover. To do this, create all the pages in the document except the final one. Select page 1, and start a new section with the Section command on the Page menu. In the resulting dialog box, specify that page numbering start on any even number. Page 1 will automatically move to the left side of the gutter. Now insert a page to round out the job, and start importing your text and graphics. Be careful if you're using automatic page numbers, because this technique will throw them off.

Ellen Reiser
Knoxville, TN

Tip of the Month

Excel 3.0

Because there's no easy way to enter vertical column headings in Excel 3.0, I've written a macro that does this automatically. It works by placing a vertical text box *over* the original cell's contents. This macro is very useful for such things as charts or tables (see Figure A).

Here's how to create the macro:

1. Choose New from the File menu, and create a new macro.

2. Type the macro exactly as shown in Figure B (or you can download it from *MacUser*'s on-line service, Zmac; it's in file VTEXT.BIN in the Scripts & Templates library of the Download & Support Forum).

3. Select cell A1, and choose Define Name from the Formula menu.

4. Type the name VerticalText, click on the Command radio button, and click on OK.

5. Choose Save from the File menu to save the macro.

When you're ready to apply the macro to column headings in an open worksheet, do the following:

1. Select the columns that contain the headings you want to rotate.

2. Choose Column Width from the Format menu. Type 3, and click on OK.

3. Expand the height of the first row to fit the longest column heading by dragging on the bar just below the first row label.

4. Select the column headings, and format them as right-justified text.

5. Choose Run from the Macro menu.

6. Click on the VerticalText macro name, and then click on OK.

See Excel's *Function Reference* manual for details on the parameters used in this macro. You can modify some of the settings used (such as font and point size) to fit your own layout.

Tim Cimbura
Fridley, MN

Product Features Report

Features	Product 1	Product 2	Product 3	Product 4
Feature 1	✔			
Feature 2		✔	✔	
Feature 3	✔			
Feature 4				✔

Figure A: Although there's no easy way to enter vertical column headings in Excel 3.0, you can use the macro shown in Figure B to rotate and place a text box *over* the original cell's contents.

Vertical Text Macro

	A
1	=ECHO(FALSE)
2	=FOR.CELL("CurrentCell",,TRUE)
3	=CREATE.OBJECT(6,CurrentCell,0,1,OFFSET(CurrentCell,1,1,1,1),0,-1,CurrentCell)
4	=PATTERNS(2,1,1,1,FALSE,1,1,1,2,FALSE)
5	=FORMAT.FONT("Helvetica",10,FALSE,FALSE,FALSE,FALSE,1,FALSE,FALSE)
6	=FORMAT.TEXT(2,3,2)
7	=NEXT()
8	=RETURN()
9	

Figure B: Copy this eight-line Excel 3.0 macro exactly as shown to create vertical column headings in tables and charts.

FreeHand 3.0

Here's one way to print a FreeHand 3.0 document that has several fonts, a situation that can frequently choke a PostScript printer. All you have to do is use the Convert to Paths command from the Type menu to change the letters into outline graphics that you can fill just like any other graphic element.

The printer now doesn't have to download any unnecessary font information — instead it takes just the individual letter descriptions that you have converted to a graphic element.

This tip also helps if you're shipping documents to a service bureau that may not have the fonts you used in your document — with the text converted to graphic outlines, it no longer matters whether the bureau has the fonts or not.

Jeff Greer
Pagosa Springs, CO

Adobe Illustrator 3.0

Here's how to use Illustrator to make fancy borders simply and quickly:

1. Draw a rounded rectangle around the design or artwork you want to border. You can also use a custom path, but borders should generally be fairly regular and the rounded-rectangle tool is easy to use. Also, sharp corners do not work nearly as well as rounded ones.

2. With the path-type tool, click on the top center of the rectangle. You can now type text, and it will wrap to the path of the rectangle. For a fancy border, use a character from Zapf Dingbats or any other iconic PostScript font. Repeat the character until it fills the path around your border.

3. To make the characters fit the border exactly, press Command-A to select all the text.

4. Press Command-T to bring up the Type Style dialog box. Arrange the screen so that you can see the bottom of your border and the dialog box. Adjust the size and tracking options, and click on Apply to see how these changes affect the border's fit. Use negative units to tighten the text.

5. The border is lined up properly when the white gap between the highlighted letters disappears. Click on OK.

When printing these kinds of borders on a printer other than your own that may or may not have the fonts you used (at a service bureau, for example), use the selection tool to select the entire border and choose Create Outlines from the Type menu (this command requires that you have ATM 2.0 or later installed). This eliminates the need for the printer to have the font you used. You can also use this trick to create several borders as EPS files for later use in PageMaker or other programs.

Jon and Cary Pugh
Livermore, CA

Microsoft Works

Need to deal with an Apple ProDOS-to-Mac-OS translation? The most common of these translations is necessary when you're transferring an AppleWorks file to Microsoft Works. The standard way to do this is to save the AppleWorks file on a 3.5-inch ProDOS disk and then use AFE (Apple File Exchange) with Microsoft's Works-Works Translator. The problem is that

— Fully System 7 compatible! —

USE IT.

If you want to protect the files on your hard disk, use Symantec's Norton Utilities® for the Macintosh,® the easiest and most powerful data repair and recovery program you can buy.

There's no better way to ensure reliable, day-in and day-out protection against crashed hard drives, accidentally erased files and disks that won't boot.

The program offers a superbly integrated set of utilities and desk accessories. For starters, the Norton Disk Doctor®—which provides System 7 users with drag-and-drop simplicity—is the only Macintosh utility that diagnoses *and* repairs the 45 most common types of disk problems.



Our exclusive UnErase® utility finds and retrieves trashed or missing files within seconds. Speed Disk™

"When it comes to rescuing a crashed disk, Norton Utilities is the best."
—MacUser Magazine, 3/91

19 90 WINNER MacUser

MACWORLD World Class Award Winner

© 1991 Symantec Corporation. All rights reserved. Norton Utilities for the Macintosh is a registered trademark of Symantec Corporation. All other brand and product names mentioned are trademarks of their respective holders.

most Apple II-family computers have only 5.25-inch-disk drives, and for AFE to do the conversion the source file *must* be on a 3.5-inch ProDOS disk.

Here's a workaround that doesn't require finding an available ProDOS drive. If you can get the AppleWorks file onto a Mac disk by electronic transfer, you can get the file onto a 3.5-inch ProDOS disk.

Launch AFE, put in a blank disk, and choose ProDOS Formatting from the File menu. After the disk has been formatted, use AFE to "default copy" the AppleWorks file from the Mac disk to the ProDOS disk. Then make sure that the AppleWorks to Microsoft Works translator is available and checked in the ProDOS to Mac menu, and convert the file.

Allan M. Bloom
Blacksburg, VA

Tips from the Experts

Microsoft Word 5.0

The new version of Microsoft's popular word-processing program is now available, and if you're converting from Word 4.0 to 5.0, you'll notice that there are a few changes. Here are some tips for dealing with Word 5.0's expanded spelling checker as well as its new grammar checker:

Turning Off Automatic Suggestions. When checking a document's spelling, Word defaults to always suggesting an alternative word to replace the misspelled one it finds. To disable this feature, click on the Options button in the Spelling dialog box. In the Preferences window that appears, uncheck the box next to Always Suggest. Another way to disable this feature is to select Preferences from the new Tools menu, select the Spelling icon from the list of icons at the left of the dialog box, and then uncheck the box next to Always Suggest.

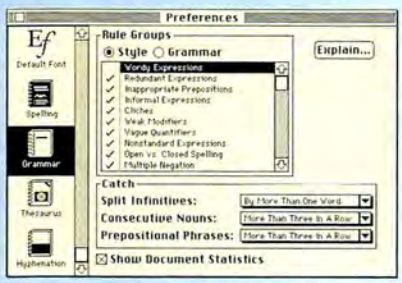


Figure C: Microsoft Word 5.0's beefed-up Preferences dialog box lets you customize spelling, thesaurus, and grammar options.

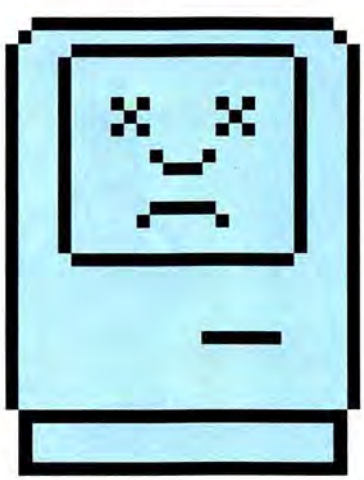
Turning Off Grammar Rules. You can use the same technique to customize Word's new grammar checker. Word checks each document against a selected set of grammar rules. If you decide that you want to disable some of these rules, you can easily turn them off in the Grammar Preferences dialog box. You access this dialog box either by clicking on the Options button in the grammar checker or by selecting the Grammar icon in the Preferences dialog box.

Two types of rule groups — style and grammar — can be controlled. To view each type of group, click on the appropriate radio button. To disable or enable a rule, click to the left of it to either add or remove the check mark.

OR LOSE IT.

ensures safety against data loss when it optimizes your hard disk for maximum efficiency. And should you ever inadvertently erase your hard disk, Format Recover restores it for you with just a few clicks of your mouse.

We've also included KeyFinder and Fast Find—two remarkable improvements to your Macintosh's Key Caps and Find File desk accessories—as well as Directory Assistance, a time-saving shortcut to opening and creating folders.



So visit your dealer and pick up a copy of Norton Utilities for the Macintosh. Or call **1-800-343-4714, Ext. 731F** for more information.

Because you really do have a lot to lose.

EDITORS' CHOICE MacWEEK 1991

SYMANTEC.™

Explore The Future Course Of Publishing

Seybold Seminars 92

Seybold Seminars 92 is the one event that can really make a difference for anyone interested in charting computer publishing technologies.

The Conference & Showcase serve as the industry stage for ground-breaking ideas, critical issues, landmark deals, strategy announcements and product launches that have a profound impact on the entire application.

With your participation in either the Conference or the Showcase, you will profit from emerging industry trends and products–before the rest of your industry.



Conference & Showcase
February 18-21, 1992
Hynes Center
Boston, MA

Call 1-800-777-6650 and ask for ext. SS3 for more information.

HELP FOLDER



Questions, anyone? Here's where to get answers from the experts. Bob LeVitus is the author of the best-selling Dr. Macintosh. *Andy Ihnatko is a longtime activist with BCS•Mac. Together, they're ready to answer questions about everything Macintosh.*

✉ *Write to Help Folder, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404.*

Don't want to wait for an answer? Post your question on Zmac, MacUser's *on-line service, and get a reply from Bob, Andy, or one of the other* MacUser *experts. See the masthead in this issue for instructions on how to sign up.*

By Bob LeVitus and Andy Ihnatko

Bob: Before we begin this month's festivities, I'd like to amend something I said in the September '91 issue ("Why Do I Quit Unexpectedly?," page 284). I said that an application's quitting unexpectedly is a signal that something is seriously wrong. Although this is often true, sharp-eyed reader Rich Love wrote to mention that in many cases, unexpected quitting can be fixed simply by increasing the application-memory size of the offending program.

He's right. If a program unexpectedly quits, try giving it more memory. To do this, select its icon, issue the Get Info command (Command-I), and type a larger value into the Current Size box (called Application Memory Size under System 6). Increase the memory size by at least 10 percent, and then see if the problem recurs. If it does, try increasing the size some more. This technique won't hurt anything; it'll just make that particular program use more RAM. If your application still quits unexpectedly after this, it's likely that something *is* seriously wrong. Try replacing the application and any support files with fresh ones from locked master disks, and if that doesn't fix things, call technical support.

One other thing: In June '91, we wrote about the system heap (page 247) — how to tell if yours is getting full and how to fix it by expanding the space for it. Since then, we've received several letters asking whether this advice applies to System 7. It doesn't. System 7 manages the system heap dynamically and therefore doesn't require that you use any additional software.

Batch Copy and Erase?

Q. The only thing I miss about my days in the DOS maze is that I could erase and copy a mess of files simply by using extensions. Now I'm in an instructional lab that uses Macs, and it's nearly impossible to keep our hard disks clean. At the end of each semester, we have to go searching through *all* the folders; find the documents created — and misnamed — by students; and then, one by one, throw them into the Trash. Why can't Mac users, like our DOS counterparts, issue a command such as Erase C:*.doc? Backups would also be a simple chore if I could tell my Mac to Copy C:*.application.

Don Nissen
Columbus, IN

*. . . But Were Afraid to Ask

It's only appropriate that on this, the 500th anniversary of Columbus's historic voyage, we pause to reflect upon and celebrate the lives of those noble voyagers. They lived in simpler times, without fancy radios, radar, and chemical toilets; they had only an adventurous spirit and a dysfunctional sense of direction.

To salute these brave idiots and their simpler lives, we present a historic reenactment of the sort of Mac question typical 15th-century seafarers were known to have asked.

Q. I'm a new Mac user, and I'm having problems. I work with a lot of text files (from an IBM system) but can't seem to open any files larger than 32K — TeachText keeps spitting the file back at me and refuses to work with such a large file. Is this a limitation of the Mac, or am I doing something wrong?

Hob Gadling
Knot Instructor's Mate 1st Class

Andy: Yes, you're doing something wrong — you're using TeachText as if it were a real word processor. As the name sort of implies, TeachText is just a free little program Apple wrote so that users could read text files containing the last-minute information that most developers include on program disks.

You don't get much for nothing. TeachText relies solely on a set of text-editing routines called TextEdit built in to the Mac. As is, TextEdit can deal only with 32K of text at a time, whereas full-blown word-processing programs (which sell for as much as a good CD player) use their own text-editing engines, which wqrk around the 32K barrier.

So you're going to have to get yourself a new word processor, big guy. Any commercial program will do just fine — two economical choices are T/Maker's WriteNow and DeltaPoint's Taste — but if you really want to minimize costs, look into CONText II, a shareware word processor written by Michael Conrad. It opens large files by chopping 'em into 32K chunks, and it's right nifty. Look for CONText II in the usual places: user groups and on-line services.

I should point out, however, that if you don't care about the 32K barrier, TeachText is a wonderful little program. As a matter of fact, when teamed with Baseline Publishing's Thunder 7 (a control panel that adds a spelling checker, a thesaurus, and document statistics to almost any program), it has 80 percent of what most folks use a word processor for. What's more, it does it in an almost trivial chunk of memory. In fact, I use TeachText to write this column, and unlike word processors I've paid more than $40 for, it hasn't crashed on me even once in four years of use.

Bob: In defense of the higher-priced spread, my word processor, Microsoft Word, hasn't crashed in almost a year, a record for me and Microsoft products. Could it be that they finally got everything fixed in version 4.0D (just in time for the release of version 5.0)? Sure it costs a lot (about $400), but it has tons of features; TeachText has none.

We Get a Good Return on Our Investment.



©Gary Meszaros

The Nature Conservancy takes a business approach to protecting our natural world. Each day in the U.S. we invest in over 1,000 additional acres of critical habitat for the survival of rare and endangered species.

Through creative techniques like debt-for-nature swaps, we are also saving millions of acres of tropical rainforest throughout Latin America and the Caribbean.

On these protected acres, migratory waterfowl return each year. Trout return to the streams. Antelope return to the grasslands. And in many areas plant and animal species previously driven to the brink of extinction are returning to their native habitats.

Join us, and make an investment in our natural heritage. Future return: isn't that what investment is all about?

The Nature Conservancy

Conservation Through Private Action

For more information, call toll-free 1-800-628-6860.
(or write The Nature Conservancy, Box PSA, 1815 N. Lynn Street, Arlington, VA 22209)

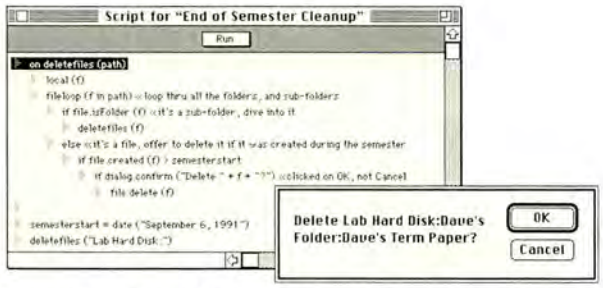


Figure 1: UserLand's Frontier is scripting software for the Mac that lets you do such things as back up, rename, copy, and delete files as well as launch and control System 7-savvy applications. The script above examines each file on the hard disk Lab Hard Disk and presents a dialog box asking if you want to delete the file.

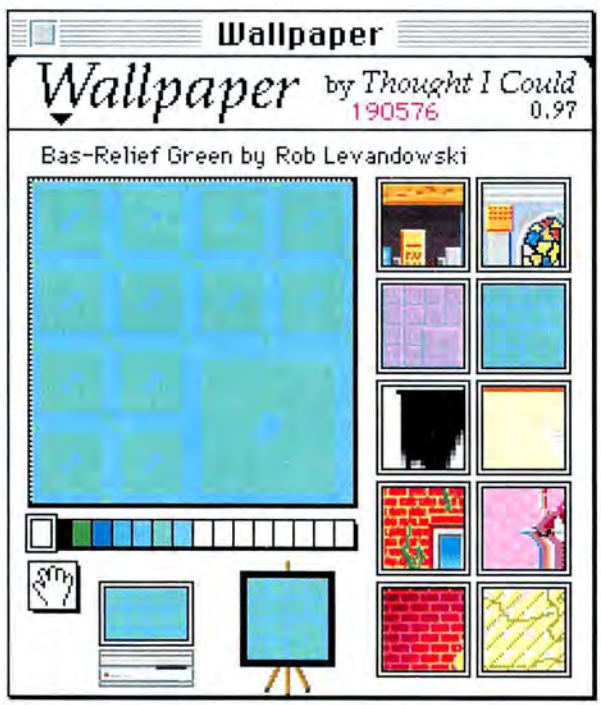


Figure 2: Want to customize your desktop? Wallpaper is a control panel that lets you create your own desktop pattern, using patterns measuring up to 128 x 128 pixels (64 x 64 under System 6). You can also use one of the included patterns, such as the one shown here.

Bob: Well, Don, there are lots of ways to do what you ask. Perhaps the most painless would be to use a file-management DA such as DiskTop, from CE Software ([515] 224-1995), or DiskTools, part of the File Director package, from Fifth Generation Systems ([504] 291-7221). Both enable you to search for files by user-specified criteria—name, type, creator, creation date, modification date, size, or any combination of these. Once the files have been found, they're presented in list form and can easily be moved, copied, or deleted, either as a group or individually.

Another option is System 7's Find command, which can

do many of the same things, albeit not as gracefully as DiskTop or DiskTools can.

Finally, you might want to consider Frontier, the first general-purpose scripting software for the Mac, from UserLand Software ([415] 325-5700). Frontier lets you control many aspects of the operating system — you can write scripts to back up, rename, copy, and/or delete files as well as launch and control System 7-savvy applications.

Figure 1 shows a simple script you can use to delete unwanted files. This script took only ten minutes to write and debug. If you decide that what you really want is to delete *only* Microsoft Word documents, you just add a line or two of code to your script and run it again.

Andy: Yeah, that's *much* simpler than typing DEL *.WK1. Frankly, I'd rather fire up Bat Filer, easily the niftiest concept since chocolate Pop-Tarts. Bat Filer assembles a list of files based on absolutely any combination of criteria you specify (name, type, creator, date created, date modified, locked files, files containing a specific phrase, and so on) and then does something useful with the files, such as deleting them, copying them, and concatenating them into one jumbo file. For example, you could use Bat Filer to select a list of all text files everywhere that contain the word *Bearcat* or all StuffIt files created before October 2, 1991. Bat Filer is shareware and is available from on-line services (such as *MacUser*'s on-line service, Zmac) and user groups.

But if you're still going to whine, Don, all is not lost: For 59 bucks, you can buy MacShell, a DOS-like command-line interface for the Mac (actually, it's more UNIX-like, but the commands are nearly identical). Send your dough to Suick Bay Technologies (make up your own joke here, and keep it to yourself), at 8768 Cottonwood Lane, Maple Grove, MN 55369; (612) 425-7025.

Windows 3.0's Good Feature

Q. Although I agree that Microsoft Windows is a poor attempt to copy the Mac interface, there is one thing Microsoft integrates into Windows that's definitely needed on the Mac — a full picture on the desktop instead of a limited pattern.

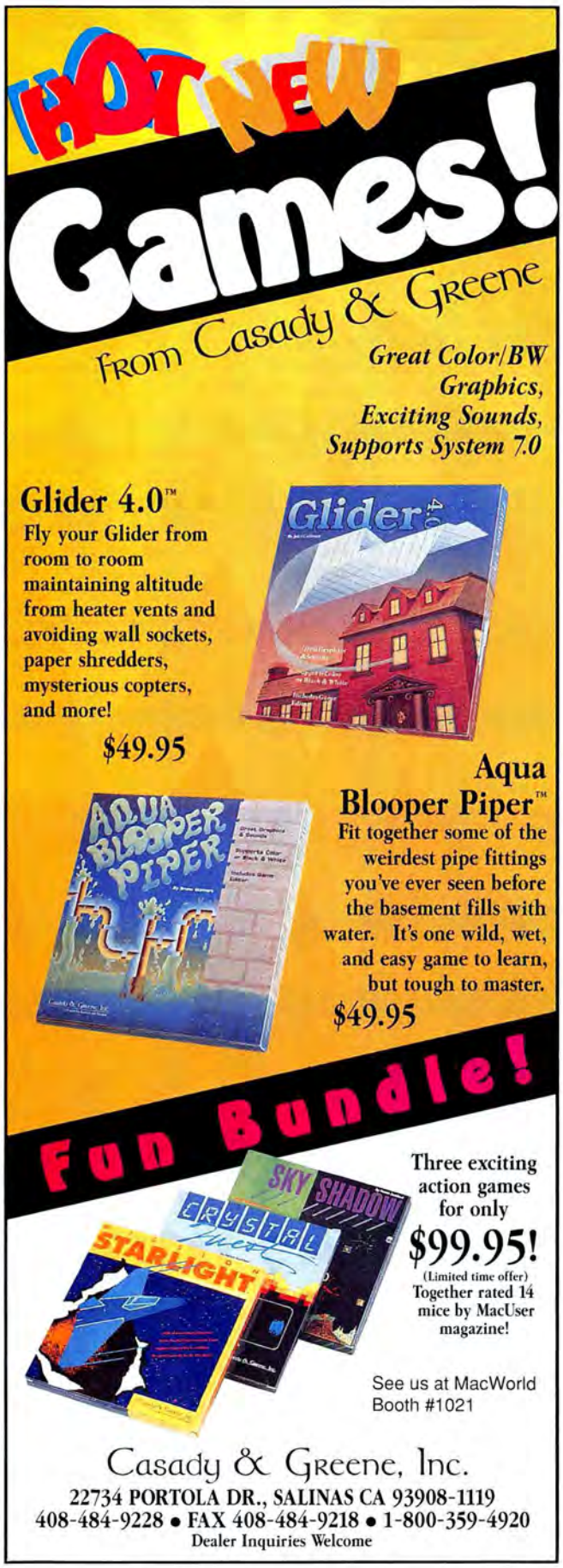
I know that DeskPicture in Now Utilities can do this, but I don't want the other utilities in the package. What I'm looking for is an INIT or control panel that will put a picture on my desktop.

Jaime Christley
Ledyard, CT

Andy: I like to refer to Windows 3.0 as Solitaire Shell — most people install it, play with its solitaire program for a while, and trash it. Surely only Microsoft, with its monumental creative and financial resources, could achieve such a technological breakthrough: a graphical user interface that's more difficult to use than a command-line interface.

But off the soapbox. Yes, Jaime, there's a very popular INIT that'll give you a desktop picture: Clay Maeckel's venerable DeskPict. No bells, no whistles, but it works under System 6 and it's free. I also feel compelled to mention BigPat, a System 7-compatible control panel written by Charles Dunn that lets you create desktop patterns made up of 32-x-32-bit elements (as opposed to the normal 8 x 8), and that makes for undreamed-of realism in brick-wall designs. If you want these public-domain programs, try your user group or an on-line service.

Bob: What exactly do you have against Now Utilities, from Now Software ([503] 274-2800)? DeskPicture is the only System 7-compatible



CIRCLE 78 ON READER SERVICE CARD.

utility I know of that lets you replace your desktop with a picture. And for what it's worth, I think Now Utilities is a fantastic deal — it includes Super Boomerang (an Open- and Save-dialog-box enhancer), Startup Manager (an INIT and control-panel manager), and Now Menus (for submenus in your Apple menu), among other things. And all for a street price that's about the same as that of many single-function utilities.

If you still feel that Now Utilities isn't for you, check out Wallpaper, from Thought I Could ([212] 673-9724). It's a control panel that lets you create your own desktop pattern with patterns measuring up to 128 x 128 pixels (64 x 64 under System 6). It includes hundreds of great-looking patterns (see Figure 2), and you can create your own with its built-in drawing tools. You can even import pictures from most Mac graphics programs.

If you're a do-it-yourselfer, check out the January Beating the System column ("ResEdit 101," page 207), in which I described how you can use ResEdit to customize your desktop pattern.

Screen Slower Under 7?

Q. Is it just my imagination, or do screen activities slow down a lot under System 7? When I use After Dark 2.0 with System 6.0.7, the movement and color changes are very smooth, but the same screen savers running under 7 are choppy, like an old movie. Is there any way around this?

Joseph Lorek
Perry, OH

Bob: Make sure you've got the right version of After Dark — you need 2.0v or later, as earlier versions don't work properly with System 7. Free upgrades are available from Berkeley Systems for those who send in their master disk (2095 Rose Street, Berkeley, CA 94709; [510] 540 5535), and you can get hold of an updater from CompuServe, America Online, or GEnie as well as find one in the new collection of After Dark modules, More After Dark.

As far as whether screen activities are slower under System 7, I'm not sure. Some users report that they're sure things are running slower; others are sure they're not. If you're using a machine with a slow processor, such as a Plus, SE, or Classic, you're more likely to notice a slowdown.

There are several things you can do to speed up screen display. The first and most significant is to open the Views control panel and make sure that Calculate Folder Sizes is turned off. Doing so speeds up the Finder a lot, no matter which Mac model you have. While you're there, check to see what font you're using in the Finder. TrueType fonts (or ATM) slow things down. Try 9-point Geneva for speediest screen updating. Small icons seem a bit faster than big ones, and if you use the list views (by name, date, size, and so on), the smallest icons seem to make things run a little faster. Finally, if you're running in color but don't really need it, try black-and-white.

Andy: And don't forget: Running System 7 is like running System 6 under



THAT WAS THEN. THIS IS NOW.

Over the years, a lot of great utilities have been created to make the Macintosh even easier and more useful.

Now, however, there's System 7, and a lot of once great and useful utilities no longer work. And many of the ones that do still work no longer seem very great...or very useful.

Which is why we created Now Utilities 3.0 — a collection of 10 utilities that will do for System 7 what products like On-Cue and Adobe Type Reunion did for System 6...only more so. As *MacUser* put it, "Now Utilities will make your Macintosh faster, easier, and more fun to use."

For example, Super Boomerang finds files by name or content, even if they've been compressed. NowMenus creates submenus up to 5 levels deep for anything you put in the Apple Menu folder — even other folders. StartUp Manager eliminates most System crashes by expanding the System Heap and disabling incompatible INIT combinations. And WYSIWYG Menus helps you quickly find the fonts you want by grouping font families into submenus, displaying fonts in their own typeface, and letting you change the order fonts appear in menus.

In fact, everything in the collection is the leader in its category. Just as importantly, everything in the collection is guaranteed to work together, and with anything else you may have...even System 6.

Call 1-800-237-3611 to learn more about why *MacWeek* said Now Utilities 3.0 is "now the best package on the market."

Now Software

Their copyrights are theirs and our copyrights are ours. Now Software, Inc. 520 S.W. Harrison St., Suite 435 Portland, OR 97201 Phone: (503) 274-2800 Fax: (503) 274-0670

CIRCLE 76 ON READER SERVICE CARD.

MultiFinder: things are always slower because the Mac has more balls in the air. That's the price we pay for a color Puzzle DA.

CD-ROM Mastery

Q. I'm a college student with an idea that's well suited for CD-ROM technology. However, I'm an intermediate Macintosh user and by no means a programmer. I would like to develop my idea myself, but I don't know how to start. What options are available to me?

Todd R. Nelson
Lake Forest, IL

Andy: Here's the quick answer: Most of the CD-ROM projects I've seen were assembled with HyperCard (for text-based information projects), MacroMind Director (for graphics and animation projects), or Aldus' SuperCard (for projects that involve a lot of both). These programs aren't that hard to master, so rest assured that you won't necessarily have to spend an inconvenient eight semesters securing a computer-science degree to put together your dream project.

Next, a rough estimate of the cost: Mucho bucks. Usually you start off spending $500 for a test pressing, which needs to be checked to make sure you haven't goofed anywhere. If the test pressing is OK, you can apply the $500 toward the cost of making a master CD, which will run between $2,000 and $3,000. Then, when you start cranking out actual CDs, you'll pay $2 to $3 dollars a pop. Prices vary all over the place, and there may be extra setup charges for things such as silk-screened art. Any way you look at it, though, you'll end up spending the equivalent of two or three good used Volkswagens to get a CD in your hot little hands.

Finally, you can get some advice from people who've been there by giving the Boston Computer Society a call at (617) 252-0600. Its Hypermedia/CD-ROM group is full of folks who've produced CD-ROMs, and they can probably set you hip to all the trials and tribulations you'll be getting yourself involved in. Try your local user group too.

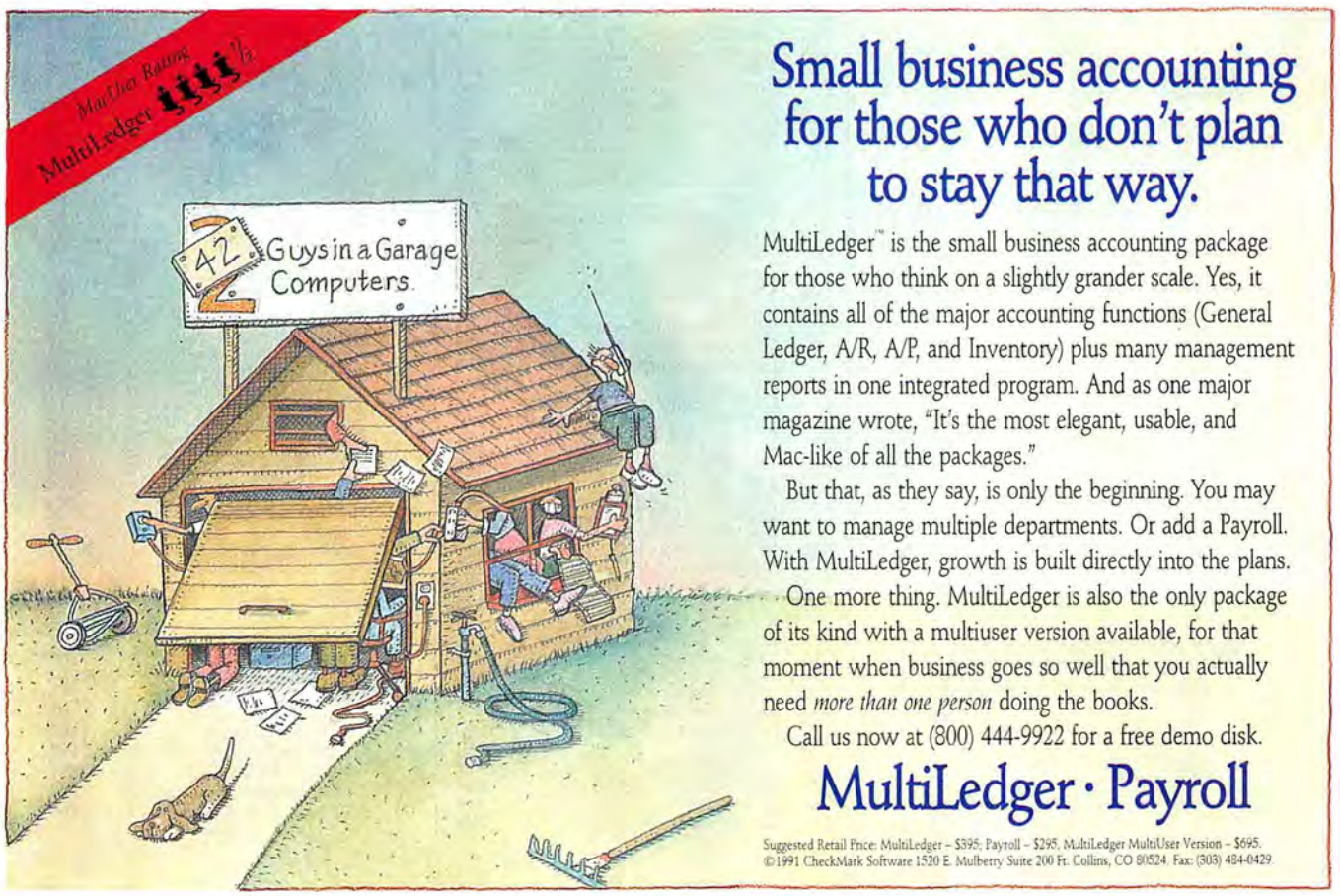
Classic to Classic II Upgrade?

Q. Now that Apple has released its souped-up model of the Classic with a 68030 processor, are there any plans for an upgrade for owners of the original Classic? If so, what's the price, is there an expansion slot of some sort, can we access System 7's virtual memory, and does it break the 4-megabyte RAM barrier?

Matt Milner
Salt Lake City, UT

Bob: Yes, there is an upgrade, it costs about $700, there isn't an expansion slot (but there is a socket for an optional math coprocessor), and you can use virtual memory under System 7. Even better, the upgrade breaks the 4-megabyte RAM barrier — you can have as much as 10 megabytes of real RAM.

Andy: Don't forget about QuickTime either. If you want to watch the Three Stooges in a HyperCard stack, you'll need Classic II capability, with a 68030 processor and 32-bit Color QuickDraw in ROM.



CIRCLE 135 ON READER SERVICE CARD.

AD INDEX

MacUser
950 Tower Lane, 18th Floor
Foster City, CA 94404
Phone (415) 378-5600
Fax (415) 378-6903

National

Janet Ryan, Publisher (415) 378-5666
Jonathan A. Lane, Associate Publisher (415) 378-5639
Kim Marshall, Advertising Coordinator (415) 378-5606
Vickie Pinsky, Classified Advertising Director (212) 503-5115

East

Northeast (MA, ME, NH, RI, VT, CT, east Canada)
Gina Ciampa, District Manager
Mystic Center, 10 President's Landing
Medford, MA 02155;
(617) 393-3065
Nancy Romano, Account Representative
(415) 378-5657

Mid-Atlantic/Southeast (NY, NJ, PA, DE, MD, DC, VA, WV, NC, SC, GA, FL)
John DeCesare, District Manager
One Park Ave.
New York, NY 10016;
(212) 503-5416
Sam Levin, Account Representative
(415) 378-5677

Central (WI, IN, MO, OH, MI, IA, ND, SD, AL, MS, TN, MN, OK, KS, IL, KY, LA, NE, AR, TX, central Canada)
Stephen Shore, District Manager
5956 Sherry Lane, Suite 625
Dallas, TX 75225;
(214) 691-6934
Joann Casey, Account Representative
(415) 378-5622

West

Northwest CA (San Francisco and north), NV, AK, OR, HI, MT, WA, ID, Canada (British Columbia, Alberta, and Saskatchewan)
Mark V. Glasner, District Manager
950 Tower Lane, 18th Floor,
Foster City, CA 94404;
(415) 378-5628
Mary Beth Plaskon, Account Representative
(415) 378-5651

Bay Area (Carmel to San Francisco)
Susan Williams, District Manager
950 Tower Lane, 18th Floor,
Foster City, CA 94404;
(415) 378-5605
Laurie Eddy; Account Representative
(415) 378-5658

Southwest CA (San Luis Obispo county and south), AZ, NM, UT, WY, CO
Lee J. Uniacke, District Manager
(213) 351-1842
Amanda Waterfield, District Manager
(213) 351-1841
3530 Wilshire Blvd.,
Los Angeles, CA 90010
Deborah Tyo, Account Representative
(415) 378-5630

Ziff-Davis Magazine Networks

Ziff-Davis MacNET Advertising Sales:
MacUser and MacWEEK in combination
J. Samuel Huey, Group Vice President
(415) 578-7310
Joseph Gillespie, Managing Director,
(212)503-5650

RS#	ADVERTISER	PAGE
179	Advance Business Center	316
100	AEC Software	6
N/A	After Hours Software	4
N/A	AGFA Corp. Type Division	77
183	Aladdin Systems, Inc.	72
N/A	Alliance Peripheral Systems	341-343
170	ALSoft, Inc.	11
30	American Mensa	236
70	Applied Engineering	5
81	Asanté Technologies	22
82	Asanté Technologies	232
110	Aura Systems, Inc.	254
21	Avatar	73
56	Avery	238
57	Avery	272
N/A	Bottom Line Distribution	328-329
42	CalComp, Inc.	252
43	CalComp, Inc.	252
22	Canon USA	147
65	Caravelle Networks Corporation	256
78	Casady & Greene, Inc.	281
94	CE Software	17
20	Ceres Software, Inc.	76
135	CheckMark	283
N/A	ChipSoft	81
N/A	Claris Corporation	57
N/A	Claris Corporation	86
N/A	Claris Corporation	30-31
46	Club Mac	292
116	Computer Associates Cricket	119
N/A	ComputerWare	80
62	Connectix Corporation	12
87	CoStar Corporation	19
88	CoStar Corporation	250
32	D'pix	255
27	Dantz Development Corporation	106
75	Dataproducts	40-41
171	DataViz	241
133	Dayna	230
10	Daystar Digital	10
186	Deneba Software	15
N/A	DGR Technologies	311
33	Direct Tech	334
122	Diskette Connection	327
34	DLM Software	34
38	Dr. Mac	290-291
89	Dubl-Click	82
35	Dustin Discount Software	49
151	E-Machines	235
112	Educational Resources Ltd.	313
172	Ehman	226
63	ETC Peripherals	35
128	Express Direct	326
129	Express Direct	327
175	Farallon	C8
103	Fifth Generation Systems, Inc.	32
102	Fifth Generation Systems, Inc.	171
104	Fifth Generation Systems, Inc.	219
36	Fox Software	244-245
126	Frame Technology Corporation	88
84	FWB, Inc.	240
162	GCC Technologies	137
163	GCC Technologies	139
164	GCC Technologies	141
165	GCC Technologies	143
67	Golden Triangle	18
N/A	Hard Drives International	335
N/A	Hewlett-Packard	20-21
N/A	Image Club Graphics, Inc.	215
152	Insignia Solutions, Inc.	51
N/A	Intuit	225
97	Kaetron Software Corporation	14
98	Kaetron Software Corporation	16
166	Kelly Temporary Services	258
37	Kent Marsh Ltd.	105
N/A	La Cie Limited	293-300
132	Lapis Technology	7
178	LaserMaster Corporation	84-85
190	Letraset	210
176	Liberty Systems	74
72	Lind Electronic Design	344
N/A	Lotus	8-9
41	Mac & MORE, Inc.	338
83	MacAcademy	59
1	MacCenter	336-337
N/A	MacConnection	92-101
52	MacDepot	301
106	MacDirect	339
39	MacEssentials	327
92	MacFRIENDS	239
95	MacFRIENDS	249
150	MacLand	330-333
137	MacProducts USA	314-315
N/A	Macromind/Paracomp	303-310
N/A	Mac's Place	318-325
48	MacSource	302
154	MacTel Technology Corp.	340
19	MacTown	302
156	MacWarehouse	202-207
N/A	MacZone, The	64-71
74	Mainstay	28
60	MarketPlace Info. Corp.	26
61	MarketPlace Info. Corp.	26
158	MASS Microsystems.	197
80	Maxell	79
161	MECA Software, Inc.	39
28	MicroFrontier, Inc.	344
139	MicroNet Technology, Inc.	107
138	MicroNet Technology, Inc.	127
N/A	Microsoft	C2-1
N/A	Microsoft	108-109
159	Microtech International, Inc.	27
160	Microtech International, Inc.	25
174	Microtek Lab, Inc.	243
40	MindGate Technologies, Inc.	344
118	Mirror Technologies	C5-C7
73	Moustrak	87
64	Multi-Ad Services, Inc.	257
177	National Instruments	260
141	NEC Technologies, Inc.	187
142	NEC Technologies, Inc.	52-53
143	NEC Technologies, Inc.	61
144	NEC Technologies, Inc.	267
44	Newer Technology	38
23	NewGen Systems Corp.	189
24	NewGen Systems Corp.	189
76	Now Software	282
58	Orange Micro	24
79	Outbound Systems, Inc.	102
167	Paragon Concepts	246
168	Paragon Concepts	246
180	PLI	104
181	PLI	185
140	PostCraft International	237
53	QMS, Inc.	55
54	QMS, Inc.	75
195	Radius, Inc.	149
N/A	RasterOps	63
123	Salient Software	89
N/A	ScanCo	106
125	Seiko Instruments	29
127	Serius Corporation	220-221
148	Silicon Beach	216-217
196	Software & HardwareThat Fits	128-129
197	Software & HardwareThat Fits	150-155
198	Software & HardwareThat Fits	312
146	Software Security	268
145	Spectrum HoloByte	257
85	Specular International	222
131	SuperMac	42
N/A	Supra Corporation	90-91
N/A	Symantec Corporation	276-277
86	T/Maker	78
105	TechWorks	264
49	Teknosys	36
47	Tektronix	223
71	Texas Instruments	208
101	Third Wave Computing	288-289
50	Thought I Could	255
114	Timeworks, Inc.	83
193	UMAX Technologies	169
149	Wacom Technology Corporation	167
N/A	Wholesale 54	317
108	XANTE Corporation	83
200	Zmac	269

MacUser **READER SERVICE CARD FREE INFORMATION**

CIRCLE FOR FREE INFORMATION

Void after May 31, 1992

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045
046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090
091 092 093 094 095 096 097 098 099 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135
136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225
226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270
271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315
316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360
361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405
406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495
496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540
541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585
586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

MU 2/92-5

IT'S AS EASY AS 1, 2, 3.

1. Circle the numbers on the card that correspond to the ads or articles you'd like more information about.
2. Fill in the space at right and drop in the mail.
3. The literature will be mailed to you from the advertiser free of charge.

PLEASE PRINT CLEARLY

Name_____

Title_____ Phone ( ) _____

Company_____

Address_____

City_____ State_____ Zip_____

4. ☐ Please send me one year (12 issues) of MacUser for $19.97. Offer valid in U.S. only.

MacUser READER SERVICE CARD FREE INFORMATION

CIRCLE FOR FREE INFORMATION

Void after May 31, 1992

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045
046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090
091 092 093 094 095 096 097 098 099 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135
136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225
226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270
271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315
316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360
361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405
406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495
496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540
541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585
586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

MU 2/92-5

IT'S AS EASY AS 1, 2, 3.

1. Circle the numbers on the card that correspond to the ads or articles you'd like more information about.
2. Fill in the space at right and drop in the mail.
3. The literature will be mailed to you from the advertiser free of charge.

PLEASE PRINT CLEARLY

Name_____

Title_____ Phone ( ) _____

Company_____

Address_____

City_____ State_____ Zip_____

4. ☐ Please send me one year (12 issues) of MacUser for $19.97. Offer valid in U.S. only.

Free Product Information

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 433 RIVERTON, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. BOX 1688
RIVERTON, NJ 08077-9688

Free Product Information

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 433 RIVERTON, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. BOX 1688
RIVERTON, NJ 08077-9688

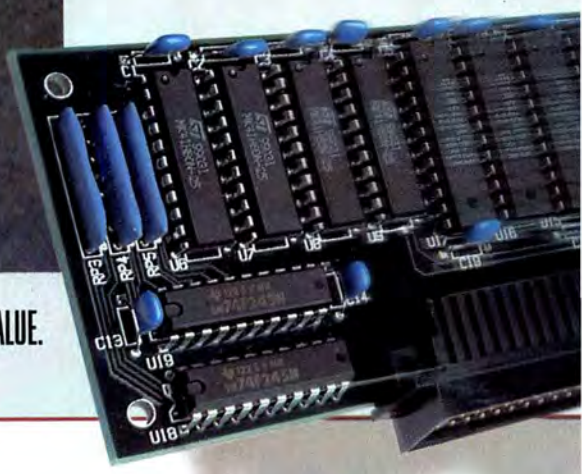


Direct Line

For many of you, mail order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section.

It's what you've been demanding — a convenient place to quickly find the products you need from the vendors you want to buy from. MacUser's Direct Line to products is just one more reason to turn to MacUser for relevant information aimed at the serious user.

I FEEL THE NEED... THE NEED FOR SPEED!



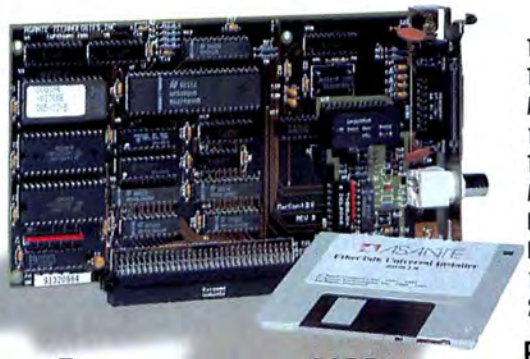
AT THIRD WAVE, ALL OUR PRODUCTS OFFER THE MAXIMUM IN PERFORMANCE AND VALUE.



CACHE CARDS FOR IISI AND IICI

LogiCache IIci	159.00
LogiCache IIsi	189.00
IIsi Dual Slot Adapter	59.00
20 MHz Math chip for Adapter	89.00

Speed up your IIsi or IIci by 40 to 80%! LogiCache IIci uses the IIci cache slot; LogiCache IIsi plugs directly into IIsi slot or into Dual Slot Adapter to allow use with other IIsi expansion cards such as video or Ethernet. Both cache cards have 64K of SRAM for maximum performance.



ASANTE ETHERNET FROM $199

Thick/Thin or Thick/10T	199.00
Thick/Thin/10T, 64K	289.00
Apple AUI/Thin or 10T	289.00
10T 12 port hub	899.00
Thick to 10T adapter	109.00
Asanté SCSI Ethernet	349.00
Dayna Etherprint	349.00
Dayna Etherprint Plus	619.00
16MHz 882 option for LC Ethernet	49.00
20MHz 882 option for IIsi Ethernet	89.00

Rated Number One by MacUser
5 Year Warranty

DayStar PowerCache 40 MHz	895.00
DayStar PowerCache 40 MHz w/882	1049.00
DayStar PowerCache 50 MHz	1299.00
DayStar PowerCache 50 MHz w/882	1549.00

Radius Rocket	1899.00
TokaMac 040 Accelerator for LC	CALL
TokaMac 040 Accelerator for IIsi/SE 30	CALL
TokaMac 040 Accelerator for IIci	CALL
16 MHz 68882 CoProcessor for LC	99.00
16 MHz 68882 CoProcessor for Classic II	119.00
16 MHz 68882 CoProcessor for PowerBook 140	249.00



TokaMac 040 Accelerators rated faster than the Quadra in three out of four benchmarks.
MacWeek– 10/22/91

ACCELERATORS AND MATH COPROCESSORS

MACINTOSH CPUS

**Classics to Quadras!
PowerBooks! Printers!**

Call for pricing on new Macs.
We also accept trade ins – convert your older Macintosh system into the latest CPU. We can help you design your entire system. Just give one of our sales consultants a call.

Import high quality still video images to your Mac. Store up to fifty images on 2 inch diskettes, camera connects to TV/VCR for previewing or taping.

XapShot camera only	429.00
XapShot w/24 bit frame grabber	749.00
Demo diskette	15.00

We carry the complete line of Canon still video.



CANON XAPSHOT

International Orders call (512) 832 8282 FAX (512) 832 1533 We accept Visa, Mastercard, American Express, and Discover.
Corporate, educational, and government purchase orders accepted. Most deliveries via Federal Express.

THIRD WAVE
COMPUTING
1(800)284-0486



DAT

All of our DAT drives include a copy of Retrospect 1.3, one DAT cassette, one DAT cleaning cassette, and your choice of SCSI cable.

Drive Prices guaranteed to be at or below listed prices. Call for latest.

SyQuest, Optical, and DAT available internally for Quadra 900!



STORAGE SYSTEMS

A MacWorld Favorite! "Quietest" — March '91
"Highest SCSI Eval. Read/Write" — Sept '91
"One of the best manuals" — Sept '91



DISK DRIVES

	INTERNAL	EXTERNAL
52 MB	239.00	329.00
105 MB	339.00	429.00
210 MB	629.00	719.00
320 MB	1099.00	1199.00
425 MB	1299.00	1389.00
650 MB	1399.00	1499.00
1000 MB	1999.00	2099.00
Portable CD ROM (Toshiba) includes Nautilus CD.		579.00

REMOVABLE MEDIA

OptiDisk 800 It's a SONY!	2895.00
OptiDisk 1000	3895.00
OptiDisk 128 'NEW'	CALL
45 SR (SyQuest) w/cartridge	475.00
45 DR (Dual SyQuest) w/2 carts.	869.00
88 SR (SyQuest) w/cartridge	669.00
88/45 DR (Dual SyQuest) w/2 carts	1199.00
150T Teac Tape Streamer	595.00
DATadrive 2GB	1395.00
DATadrive 5GB	1595.00

MEMORY UPGRADES

Third Wave memory for every Mac.
Built in our own facility.

1,2,4,8, and 16 MB SIMMs
Logica SIMMpack for Classic 0, 1, or 3 MB
LC and Quadra VRAM SIMMs
PowerBook 2, 4, or 8 MB

Prices change often, call for latest.



MEDIA AND SOFTWARE



80 MB Tape for Teac	17.00
150 MB Tape for Teac	24.00
SyQuest 45 MB cartridge	89.00
SyQuest 88 MB cartridge	125.00
DAT cassette 60 meter	19.00
DAT cassette 90 meter	38.00
Optical cartridge (ISO) 512 kb/sector	125.00
Optical cartridge (ISO) 1024 kb/sector	125.00
Optical cartridge for Tahiti	269.00
Optical cartridge 128 MB	99.00
XapShot video diskette	10.00
Maxima 2.0 memory mgmt. software	45.00

SuperMac, RasterOps,
Radius, Ikegami, Seiko and Sony.
13,16,19, and 21 inch monitors
Accelerated Video cards.
Call for latest prices!

DISPLAY SYSTEMS

THIRD WAVE COMPUTING, INC. 18268 Kramer Lane Austin, Texas 78758 (800) 284-0486 (512) 832-8282 FAX (512) 832-1533
CIRCLE 101 ON READER SERVICE CARD.

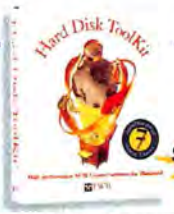
We Take Care Of You

Lowest Prices ▪

CALL DR.MAC 1-800-825-6227

Accessories

ABCOM
- CARRY CASE CI, CX,SI, IMGWTR 82
- CARRY CASE SE/PLUS EXTEND KBD 86
- POWERBOOK CASE 72
- DUST COVERS *from* 15



$134

HARD DISK TOOLKIT

Hard Disk Toolkit supports all SCSI hard drives, removables and opticals with complete formatting, partitioning, password protection, encryption, benchmarking, and more. Powerful professional features like high-speed SCSI copy, microcode control, SCSI-2 support and comprehensive diagnostics make Hard Disk ToolKit a "must have" utility for all users.

POCKETHAMMER DRIVE 50 MB 587
POCKETHAMMER DRIVE 100 MB 792
POCKETHAMMER DRIVE200 MB 1198

APPLIED ENGINEERING
- AE HIGH DENSITY 3.5 MAC DRIVE 225
- QUADRALINK 199

ARTICULATE SYSTEM
- VOICE NAVIGATOR II 565
- VOICE IMPACT 78
- VOICE IMPACT PRO 198

FARALLON
- MACRECORDER 2.0 172

KEYTRONICS
- MACPRO PLUS 139

LOGITECH
- MOUSEMAN 79

MOUSE SYSTEMS
- LITTLE MOUSE ADB or MAC PLUS 74

PHILLIPS & DUPONT
- 650MB OPTICAL CARTRIDGE 146

TRIPLITE
- MACDIRECTOR 88

VENTANA PRESS
- SYSTEM 7 BOOK 18

WACOM
- 12" X 12" ELECTROSTATIC TABLET 838
- 12" X 12" STANDARD TABLET 775
- 6" X 9" STANDARD 519
- Full line of Digitizing tablets available ..... CALL

Communications

DOVE
- DOVEFAX PLUS 355

HAYES
- PERSONAL MODEM 2400 PLUS 148
- SMARTMODEM 2400 & SMARTCOM 345
- ULTRA 9600 MODEM 782
- SMARTCOM 3.3 82

PROMETHEUS
- MINIPLUS 2400 V.42 & MacKnowlege 128
- 24/96MSR FAX MODEM (MAXFAX) 265
- 9600/9600M PLUS V.32/42 MNP5 665
- ULTIMA14,400 BAUD MODEM/9600 FAX ... 685



$148

Hayes®

PERSONAL MODEM 2400 PLUS

Specially designed to simplify communications for the first-time home or business user. Personal Modem Plus products offer a complete PC or Macintosh™ communications solution since they are bundled with Smartcom™ communications software and come with permanently attached computer and telephone cables.



$128

PROMETHEUS

V.42 MINIPLUS

All the features of modems twice their size at half the cost. 2400 bps data modems with V.42bis/ MNP-5 data compression and error correction, one with 9600 bps send / receivefax, one without. both offered as complete packages with all the software and cables.

SHARP
- EBR-9600 BAUD MODEM MNP5 155

SHIVA
- ETHERGATE 1289
- ETHERPORT 285
- FASTPATH 1985

Storage

CHINON
- CDC-431 CD ROM REMOTE DRIVE 585

FWB
- POCKETHAMMER 50 MEG 587
- POCKETHAMMER 100 MEG 792
- POCKETHAMMER 200 MEG 1198

IOMEGA
- BERNOULLI90 MB TRANSPORTABLE 788
- CARTRIDGES (90 MEGS) 144



$788

IOMEGA

90MB TRANSPORTABLE BERNOULLI DRIVE

This design gives the user a virtually crashless drive and one with unlimited growth. Your only limitation is the amount of cartridges purchased. Because the 90MB family has an effective access time of 19ms, it is a viable primary storage device, yet can also be used in backup and archival environments using the backup software included with the drive (can compress 180MB).

MASS MICRO SYSTEMS
- DATAPAK 45 REMOVEABLE HD 639
- DATAPAK 88 REMOVEABLE HD 849

MICROTECH
- NOVA 200 1145
- NOVA 320 1395

PLI
- 45 CARTRIDGE 79
- INFINITY 40 SINGLE W/CARTRIDGE 659

RODIME
- R45 PLUS REMOVABLE HD 598

Monitors & Boards

APPLIED ENGINEERING
- CACHE IN 185
- FASTMATH LC 129
- QUICKSILVER 265

HARRIS LABORATORIES
- PERFORMER ACCELERATOR CLASSIC ... 236

E MACHINES
- QUICKVIEW STUDIO 1839
- QUICKVIEW Z21 1839
- T16 COLOR PAGE SYSTEM 1850
- T19 19" COLOR SYSTEM 3599
- TX 16" COLOR SYSTEM 2545

GENERATION SYSTEMS
- MAC II, CLASSIC 19" MONO SYS 995
- MAC II, CLASSIC 15" MONO SYS 635

MASS MICRO SYSTEMS
- COLOR SPACE ..... *Special pricing* CALL
- DATAPAK 639
- QUICKIMAGE W/PHOTOSHOP 559
- RIVAL 19" MONO SYSTEM, MAC II, SE ... 1075

MICRON
- MACROCOLOR II 24 BIT VIDEO CARD 477
- GRAY-SCALE 30 8BIT CARD FOR SE30 84
- COLOR 30 VIDEO CARD FOR SE/30 339
- XCEED IICI CACHE CARD 235

NEC
- MULTISYNC HG SERIES ..... CALL

RASTEROPS
- 24SI ACCELERATED BOARD 598
- 24STV COLOR DISPLAYBOARD 1198
- 8XLI DISPLAY BOARD 1299
- 24XLI DISPLAY BOARD 2699
- 19" COLOR TRINITRON MON ..... *Special* 2498

$29



NEW FEATURES!!

EASY ALARMS 1.5

System 7 savvy, Easy Alarms organizes your schedule, maintains your To Do list and reminds you of upcoming events. Advanced features include network-wide calendar access, user scripting, AppleEvents sending and receiving and Notify! Pager support.

Printers/Scanners

ABATON
- LASERSCRIPT LX PRINTER 1599
- SCAN 300 COLOR 999

BEZIER
- BP 4040 LASER PRINTER 1399

CAERE
- TYPIST PLUS 469

CHINON
- DS 3000 COLOR SCANNER 696

DEST
- PERSONAL SCAN & RECOGNIZE 669
- MACSCAN 3000 990

KODAK
- DICONIX PRINTER 369

LOGITECH
- SCANMAN SCANNER 299

MARSTEK
- MARS 800-MAC 64 HAND SCANNER 299
- COLOR ARTIST HAND SCANNER 579

MICROTEK
- SCANMAKER 1850S SLIDESCANNER 2099
- SCANMAKER 600GS GREYSCALE 1118
- SCANMAKER 600ZS COLOR SCAN 1459
- TRUE LASER/TRUEIMAGE LASERPRTR. 1299

NEC
- COLORMATE PS MODEL 40 4999
- SILENT WRITER 2 MODEL 90 1499

PRIME OPTION
- PHOVOS 600 GS SCANNER, PHOTOSHOP WORDSCAN & SHEET FEEDER 1795



$56

MACINTAX

America's Best Selling Tax Software for the Mac! MacInTax includes: over 80 IRS-approved forms, schedules, and worksheets; on-line help menus to explain IRS rules; IRS audit feature; & FREE support. MacInTax interfaces with MacInTax Personal/1040, & transfers data from federal forms to state forms automatically. MacInTax prints your return ready to send to the IRS! MacInTax even provides tax savings suggestions tailored to your particular situation.

MacInTax State Packages! Only $42 (each sold separately).



VOICE IMPACT / VOICE IMPACT PRO

Voice Impact is the smallest high quality sound digitizer for the Mac. Incredibly small foot print- 2 1/2" by 1 1/4". It records voice, music or any sound directly to your Mac. Ideal for anyone looking for an inexpensive "sound" solution with the highest quality! "Free Sound Editing Package!"

QMS
- COLORSCRIPT 100 10P 4995
- QMS PS 815 LASER 8PPM 20MMz 3088
- QMS PS 815MR LASER 600x600 dpi 4995
- QMS PS 410 1688

RELISYS
- TEFAX RA2125 855

UMAX
- UMAX COLOR 600 1375

Business

BASELINE PUBLISHING
- DATABASE 1.5 70

CAERE
- OMNIPAGE 3.0 489

CLARIS
- CLARIS CAD 2.0 625
- FILEMAKER PRO 209
- RESOLVE 265

CERES SOFTWARE
- INSPIRATION 3.0 169

CHIPSOFT
- MACINTAX 56
- STATES When available 42

DELTAPOINT
- DELTA GRAPH 1.5 117

DESIGNCAD
- DESIGNCAD 2D/3D 378



NEW ERA

$174

NUBASE

nuBASE is a sophisticated, relational database environment that allows both novices and experienced programmers to create custom applications quickly and easily. But don't let its ease of use fool you, it's the most powerful relational database available on the Mac.

DEST
- RECOGNIZE 449

FISHER
- IDEA FISHER 384

INNOVATIVE DATA DESIGN
- DREAMS 399
- MACDRAFT 276

MECA
- MANAGING YOUR MONEY 98

MICROSOFT
- EXCEL 3.0 308
- MICROSOFT OFFICE 595
- MICROSOFT WORD 4.0 246

NEW ERA
- NUBASE 174

PARAGON
- NISUS 238
- NISUS COMPACT 3.3 96

REALITY
- WEALTH BUILDER 94

SOFTWARE DISCOVERIES
- RECORD HOLDER PLUS 68

SAS INSTITUTE
- JMP 2.0 589

SYMMETRY
- KEY PLAN 199



$719

STRATAVISION 3D 2.0

Already donned with industry awards there's even greater power with version 2.0. Extended modeling gives you more control over objects. Apply realistic textures, set reflectivity and soften shadows with improved ease. Animations of linked objects offer stunning results.

TIMESLIPS
- TIMESLIPS III 2.0 187
- TIMESLIPS TAL MODULE 55

WOLFRAM
- MATHEMATICA 2.0 ..... CALL

WORDPERFECT
- WORD PERFECT 2.01 275
- WORDPERFECT OFFICE 88

WORDSTAR
- CORRECT GRAMMER 48
- AMERICAN HERITAGE DICTIONARY 48

WORKING SOFTWARE
- QUICK LETTER 84

Graphics & Publishing

ABRACADATA
- DESIGN Interiors/Landscape/Architecture 62

ADOBE
- ENTIRE FONT LIBRARY . *Special Price* CALL
- ILLUSTRATOR 3.2 WITH ATM 358
- PHOTOSHOP 2.0 ..... *Special Price* 495
- STREAMLINE 2.0 118
- TYPE ON CALL 45
- TYPE SET 1 OR 2 62
- TYPEALIGN 65



$136

PUBLISH IT! EASY 2.1

Publish It! Easy 2.1 is a full featured Desktop Publishing program designed to be your all-in-one answer to page design needs. Complete with: Word-Processing, built-in Drawing & Painting Tools and full feature Page Layout (including one degree rotation of text and graphics). This program can handle the toughest assignments. "Best Page Design Program" of 1991!, MacUser. System 7 compatible! Includes File • It!, an advanced built-in data base and mail merge program.

AGFA
- AGFA TYPE 2.1 59
- STUDIO SERIES SPECIAL
- *any 8 fonts, get 4 studio fonts free* 255
- TOSHIBA XM-3301 CD DRIVE
- W/ AGFATYPE 2.1 688

ALDUS
- FREEHAND 3.0 388
- PAGEMAKER 4.0 489
- PERSUASION 2.0 319

ALTSYS
- FONTOGRAPHER 265
- METAMOPHISIS PROFESSIONAL 88

CLARIS
- MACDRAW PRO 275

DENEBA
- CANVAS 3.0 279

DYNAWARE
- DYNAPERSPECTIVE 589

FARALLON
- MEDIA TRACKS 189

FRAME
- FRAMEMAKER 589

GOLD DISK
- ANIMATION WORKS 119

LETRASET
- COLORSTUDIO 499
- IMAGESTUDIO 138

MICROFRONTIER
- ENHANCE 199

MONOTYPE
- TRUETYPE IMPRINTS 21
- DESIGNING REPORTS & Presentations 115

MOTION WORKS
- ADDMOTION 177

MULTI AD SERVICES
- MULTI-AD CREATOR 498

PARACOMP
- FILM MAKER 429
- MODEL SHOP 2.0 559
- SWIVEL 3D PRO 2.0 429

PIXAR
- MACRENDERMAN & SHOWPLACE 546
- MACRENDERMAN OR SHOWPLACE .each 539

QUARK
- QUARKXPRESS 3.1 509



$349 $209

SERIUS PROGRAMMER

An object programming system allowing non-programmers to construct their own software. Supports animation, color painting, communications, databases, networking, scanning, sound, spreadsheets, and word processing.

SERIUS DEVELOPER

A superset of Serius Programmer allowing developers to create their own objects.

SPECIAL UPGRADE OFFER ...CALL FOR DETAILS!

RAY DREAM
- JAG 64
- RAY DREAM DESIGNER 592

SPECULAR INTERNATIONAL
- INFINI-D 3D RENDERER 645

STORM
- PICTUREPRESS 119

STRATA
- STRATAVISION 2.0 *new version* 719
- TEXTURES ..... CALL

SYMMETRY
- MARIAH 89

TIME ARTS
- OASIS 525
- OASIS & WACOM TABLET 945

TIMEWORKS
- PUBLISH IT EASY MAC 136



$93

REPORTS 2.0

Reports 2.0 turns Hypercard into a true database. Create all kinds of good looking reports, mail-merge letters, labels and complex forms with Reports 2.0 and HyperCard. You can even perform complex data queries. MasterView gives you a visual overview of your stacks in an interactive, spreadsheet-like window. PaperSaver lets you view at different scales, and print at full size, quarter size, or thumbnails to paper or to disk!



$46

DISKDOUBLER 3.7

Expand your disk drive capacity. Fast, easy and safe. DiskDoubler dramatically increases the storage capacity of any Mac Drive. "Performance is outstanding," evaluates MacUser, July 1990 (4 1/2 mice rating).

AutoDoubler now available only $46

VISUAL DEVELOPMENT
- PRESENTER PRO w/MACRENDERMAN .. 3299

ZEDCOR
- DESK PAINT AND DRAW 98

Networking

ASANTE
- FULL LINE OF PRODUCTS AVAILABLE .. CALL

CARAVELLE
- MAC TO MAC 10 PACK 199

FARALLON
- STAR CONTROLLER 300 889
- STAR CONTROLLER ETHERNET 1395
- TIMBUKTU 4.0 133
- TIMBUKTU REMOTE 2.0 133

INSIGNIA
- UNIVERSAL SOFT PC 195
- SOFTAT 295

MICROCOM
- CARBON COPY MAC 57



$96

NEW COMPACT VERSION!!

NISUS COMPACT 3.3

Word Processing for your new PowerBook™. Almost all the power of Nisus 3.06 with less than half the size and cost. Special features for organizing and finding files when you're on the go plus new battery-saver design for disk access.

NUVOTECH
- NUVOLINK SC 359
- NUVOLINK II 188
- TURBONET DIN-8 or DB9 24
- TURBONET ST DIN-8 or DB9 32
- TURBOSTAR 869

SITKA
- MACTOPS BUNDLE 179

Utilities/Programming

ADOBE
- ADOBE TYPE MANAGER 2.0 57

AFTER HOURS SOFTWARE
- TOUCHBASE 77

ALADDIN
- STUFF IT DELUXE 2.0 62

ASD
- FILEGUARD 2.7 137

AVERY
- MACLABEL PRO 47

BASELINE PUBLISHING
- EXPOSURE PRO 75
- PERSONALITY 58

BERKELEY
- AFTER DARK 28
- MORE AFTER DARK 28
- AFTER DARK/MORE AFTER DARK BDL 48

CE SOFTWARE
- DISKTOP 4.0 62
- QUICKEYS 2 2.1 92
- TILES 62

ESSENTIAL SOFTWARE
- EASY ALARMS 29

FWB
- HARD DISK TOOLKIT 134

IMAGEN
- ULTRASCRIPT PLUS 285

INSIGHT DEVELOPMENT
- MACPRINT 89

LANGUAGE SYSTEMS
- FORTRAN WITH MPW 498
- WILD THINGS 119

MAGNA
- EMPOWER 1 SECURITY 79
- EMPOWER 2 SECURITY 142

MICROCOM
- VIREX 3.0 59
- VIREX 3.0 10 PACK 345

$62



TILES

A better way to organize your work. No need to search through mazes of folders, launch a myriad of applications located on different servers, or try and gather all the pieces of that big project together again. Tiles remembers what you work on and where it is—just double click . Tiles puts everything you need to work at your fingertips, so you spend less time getting back to work and more time getting work done.

MICROSPOT
- MACPALETTE II 55

MULTI AD SERVICES
- MULTI-AD SEARCH 108

NINE TO FIVE SOFTWARE
- REPORTS 2.1 93

SALIENT
- DISK DOUBLER 46

SERIUS
- SERIUS DEVELOPER 349
- SERIUS PROGRAMMER 209

SOFTWARE COMPATABILITY
- SOFTWARE BRIDGE 59

SYMANTEC
- NORTON UTILITIES 1.1 86
- SAM 3.0 63
- SUM II 96
- THINK C 5.0 196

SYMMETRY
- ACTA ADVANTAGE 49

WORKING SOFTWARE
- LAST RESORT 36

Policies

- Visa, Mastercard & Amex accepted.
- Credit card is not charged until order is shipped.
- California residents add 8.25% sales tax
- Hours: Mon-Fri 9:30-11 EST
  Sat 11-6 EST
- Call (818) 504-1800 FAX (818) 504-9380
- Compatibility not guaranteed.
- All prices & policies subject to change without notice.

Shipping
- $3. Airborne Overnight continental US. Hardware over 10 lbs will be shipped ground.
- Same day shipping. Some areas may require an extra day.

Returns
- Call for R.A. number before return Restocking fee may apply.

•Money Back Guarantee
- Most products have a 30-day money back guarantee. Please inquire when you order. Retain original packaging to ensure proper credit.

CALL DR.MAC 1-800-825-6227

International Dealer Program

- We ship worldwide
- Call about our special pricing& services

Corporate Accounts:

- Open an account within 24 hours
- Volume discount pricing
- School purchase orders accepted

Fed. ID# 95-4183196

Visit our booth #343 Moscone at MacWorld Expo

Dr Mac

1-800-825-6227 from the U.S. & Canada

Fax: (818) 504-9380 or (818) 504-2159

11050 Randall Street, Sun Valley, CA 91352 • (818) 504-1800

CIRCLE 38 ON READER SERVICE CARD.

SER 2/92

Quantum

Capacity			Internal	External
50mb	3.5" Low Profile	9ms/25ms*	**$219**	**$279**
105mb	3.5" Low Profile	9ms/25ms*	**$335**	**$395**
120mb	3.5" Low Profile	9ms	**$389**	**$449**
170mb	3.5" Half Height	10ms	**$499**	**$559**
210mb	3.5" Half Height	10ms	**$619**	**$679**
425mb	3.5" Half Height	8ms	**$1195**	**$1255**

Quantum Drives include a TWO Year Warranty
3.5" Half Height drives are the PRO series. 3.5" Low Profile drives are the LPS series.
*3.5" Low Profile, Low Power drives for the Mac Classic, LC, and IIsi.



All Drive include SCSI Director formatting software, mounting kits (Quadra 900 brackets extra), and all cables needed. Visa and MC accepted with no surcharge. Credit cards will be billed at time of shipment. University PO's Accepted NET 30, FOB Irvine. Corp PO's accepted upon approval. All hard drives carry a 30 day money back guarantee. All capacities are approximated, actual capacities may vary. All prices subject to change without notice.

Maxtor®

Capacity			Internal	External
40mb	3.50" Low Profile	17ms	**$219**	**$279**
80mb	3.50" Low Profile	17ms	**$269**	**$329**
207mb	3.50" Half Height	13ms	**$599**	**$659**
500mb	3.50" Half Height	12ms	**$1445**	**$1505**
645mb	5.25" Full Height	16.5ms	**$1395**	**$1495**
1.0GIG	5.25" Full Height	13ms	**$1925**	**$2025**
1.4GIG	5.25" Full Height	13ms	**$2509**	**$2609**

Maxtor Drives include a TWO Year Warranty
Maxtor 40 and 80 are perfect for the Mac Classic, LC, and IIsi.

FUJITSU

Unbeatable Quality and Performance

Capacity			Internal	External
330mb	3.50" Half Height	9ms	**$1295**	**$1355**
425mb	3.50" Half Height	9ms	**$1367**	**$1427**
520mb	3.50" Half Height	9ms	**$1477**	**$1537**
345mb	5.25" Full Height	16ms	**$1197**	**$1297**
645mb	5.25" Full Height	16ms	**$1277**	**$1377**
1.2GIG	5.25" Full Height	11.5ms	**$1947**	**$2047**

Fujitsu Drives include a FIVE Year Warranty

Seagate

Capacity				Internal	External
320mb	2383	5.25" HH	14ms	**$1155**	**$1215**
330mb	4385	5.25" FH	10.7ms	**$1275**	**$1335**
420mb	1480	3.50" HH	14ms	**$1269**	**$1369**
645mb	4766	5.25" FH	15.5ms	**$1725**	**$1825**
645mb	4767	5.25" FH	11.9ms	**$1425**	**$1525**
1.0GIG	1200	5.25" FH	15ms	**$1989**	**$2089**
1.4GIG	1650	5.25" FH	15ms	**$2399**	**$2499**

Seagate Drives include a ONE Year Warranty
Internal Drives fit the Mac II, IIx, and IIfx. HH = Half Height, FH = Full Height.

SyQuest

TECHNOLOGY

44mb	5.25" Removable Disk Drive 20ms	**$429**
88mb	5.25" Removable Disk Drive 20ms	**$595**
Dual 44mb	Includes one cartridge	**$779**
Dual 88mb	Includes one cartridge	**$1099**
Dual 44mb & 88mb	Includes 1 of each cartridge	**$1039**
44mb Cartridge		**$66**
88mb Cartridge		**$115**

SyQuest Drives have a TWO Year Warranty! Includes one cartridge, all necessary cables, and SCSI Director™ Formatting Utility.

1-800-854-MACS

New Address! New Address!

MACWORLD EXPOSITION
Booth #5801
VISIT US AT
MACWORLD EXPOSITION
BROOKS HALL & CIVIC AUDITORIUM
SAN FRANCISCO
JANUARY 12-15, 1992

ClubMac

ClubMac • 3 Musick Irvine, CA 92718 • Sales (800) 854-6227 • 24 Hour Fax (714) 768-9354 • Int'l (714)380-0816

CIRCLE 46 ON READER SERVICE CARD.

See us at Macworld Expo! Moscone Center, Booth #625

We're proud of our reputation.

"...The Good Housekeeping Seal. I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."
MacWeek, February 1991

"Between the good sales support and tech support that go the extra mile, La Cie is tops in my book!"
Bill Ringle, Philadelphia, PA

"La Cie offers the leading combination of software and performance."
Macworld, March 1990

The La Cie tradition of pride.

Pride in our products. Pride in our commitment to customers. Pride in who we are. At La Cie, "pride" has fueled each and every step in our success. Since our very first product, La Cie has earned an unsurpassed reputation for excellence. Top-rated performance. Award-winning design. From our sleek mass storage solutions to our Silverlining software, no other company in our industry has earned greater acclaim. Or appreciated it more.

LACIE LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free
800-999-0143
6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

We're proud





La Cie PocketDrive

When size really counts.

As a Quantum Company, La Cie offers customers the advantages of $489 million in assets. Deep-pockets R&D. State-of-the-art technology. Superior value. And, the assurance of long-term support. Yet for all our size, La Cie's smallest achievements still make our biggest headlines.

Introducing the PocketDrive.™ Portability in the palm of your hand.

Pack it in your pocket, purse or briefcase. La Cie's new 40MB and 80MB power-packed PocketDrives offer ounces of convenience, not pounds. Using Quantum's new 2½" drive, the PocketDrive offers 19ms seek time, whisper-quiet operation and La Cie's exclusive switchable termination and SCSI ID.

La Cie 40MB PocketDrive

$499

Desktop docking.

La Cie's PocketDrive eliminates the hassle of fumbling with cables at the back of your Macintosh every time you connect or disconnect the drive. Instead, the PocketDrive comes with a unique PocketDock™ desktop docking cable that lets you plug in the PocketDrive in seconds. With a second PocketDock (only $99), you can have fast and easy connection at work and at home. There's even a minature T-connector (only $59) for connecting to other Macintosh systems.

Pocket Silverlining and an extendible 2-Year warranty.

Every PocketDrive comes complete with one PocketDock, our award-winning Silverlining hard disk management software and our extendible 2-Year Limited Warranty. For only $1 per MB, you can enjoy 72-hour warranty service for up to 5 years.

Price does not include shipping. Add 5% surcharge for American Express. Add sales tax where applicable. La Cie is a trademark of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. La Cie, Ltd., all rights reserved, printed in U.S.A.. © Copyright 1991. 19552 SW 90th Court, Tualatin, OR 97062. Phone: (503) 691-0771, Fax: (503) 691-5590.

of our size.



La Cie MicroOptical Drive

Set your sites on a MicroOptical™ magneto optical drive.

Introducing MicroOptical. La Cie's remarkable new 3 1/2" magneto optical drive that offers massive storage capacity, superb reliability and high-speed performance in a compact case.

Space consciousness.

Smaller, faster and less expensive than conventional optical drives, La Cie's MicroOptical uses cartridges that are the same size as 3.5" floppies, but store eighty-eight times more data that high-density floppy disks. Engineered to fit within our space-saving, award-winning Cirrus case, the MicroOptical offers the reliability of optical media, 30ms seek times and the economy of removable cartridges.

La Cie MicroOptical Drive

$1699

Lose Weight. Lose Wait.

Until now, optical technology had a reputation for being slow. MicroOptical drives at 30ms are faster than the conventional opticals. La Cie's MicroOptical leaves the others in the dust.

Try one on for size.

When you need major-league performance in a pint-sized package, call us. We offer surprisingly small prices and a huge commitment to service and support.

I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."
MacWeek

LACIE LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

We're proud



The drive to satisfy.

At La Cie customer satisfaction is the driving force behind everything we do. From our innovative product design to our capable, courteous customer support, La Cie goes the extra mile to assure you quality, service and value.

La Cie award winning chassis. Quantum power under the hood.

Sleek. Streamlined. Easy handling. Economical. La Cie drives deliver the advantages of award-winning design and state-of-the-art technology. Inside and out. For high-speed performance you can depend on, all La Cie hard drives up to 400MB incorporate the world's most respected and most trusted drive mechanisms–Quantum!

La Cie hard drives from

$299

Internals. Space savers. Portables.

La Cie offers customers a complete line of hard disk drives featuring state-of-the-art components, whisper-quiet half-speed fans, access times as low as 15ms, wide-range power supplies and La Cie's exclusive switchable termination and SCSI ID.

- 50MB-1.6GB Internal
- 50MB-1.6GB ZFP
- 50MB-400MB Cirrus
- 50MB-400MB Tsunami
- 50MB & 100MB Bacster™
- 40MB & 80MB PocketDrive

Drive the La Cie Express.™

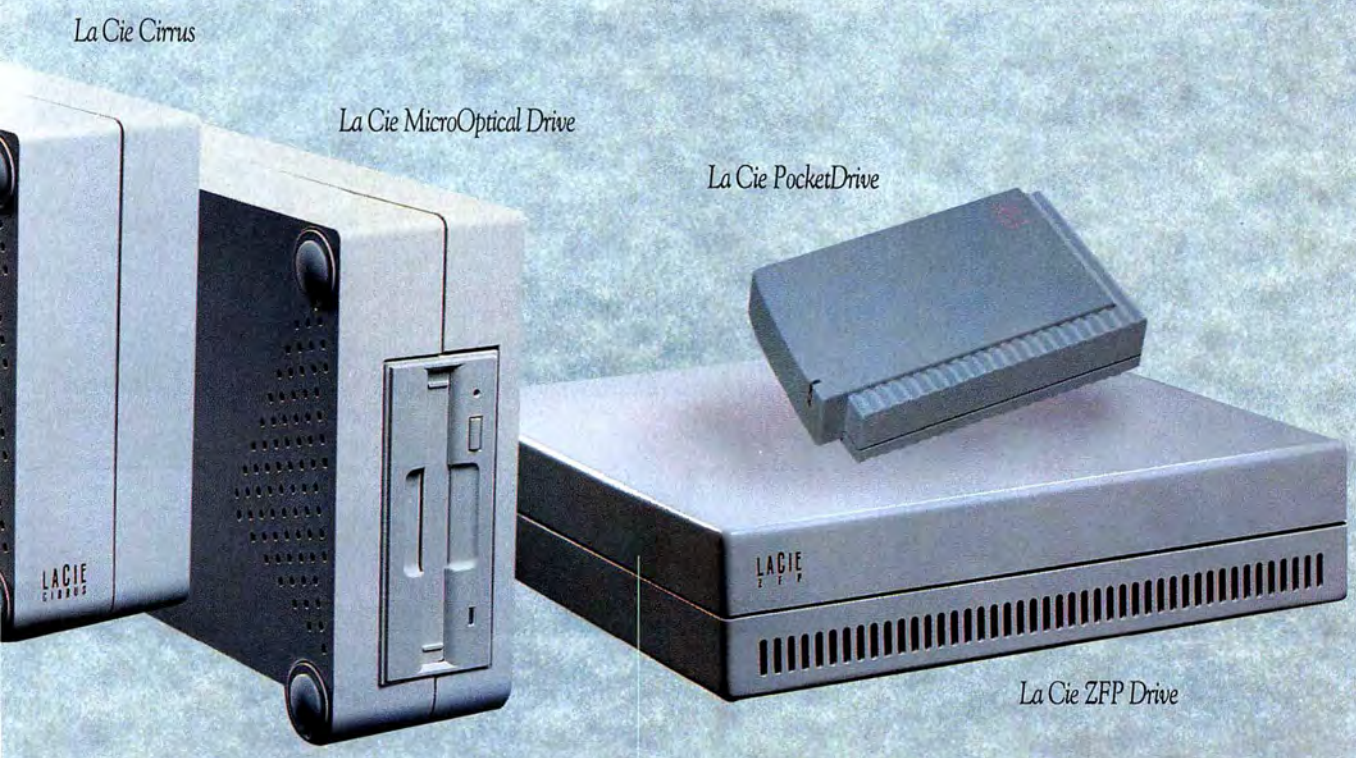
We love all our drives, but take a look at our newest arrival. La Cie's new ExpressDrive™ Perfect for sensitive installations, the ExpressDrive is empowered with the performance of a Quantum fixed drive and the security and convenience of a removable drive, yet none of the risks of open-air media.

ExpressDrive from

$Call

Price does not include shipping. Add 5% surcharge for American Express. Add sales tax where applicable. La Cie is a trademark of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. La Cie, Ltd., all rights reserved, printed in U.S.A.. © Copyright 1991. 19552 SW 90th Court, Tualatin, OR 97062. Phone: (503) 691-0771, Fax: (503) 691-5590.

of our drive.



Readable. Writable. Removable.

Economical, versatile, ideal for archival backup, La Cie's comprehensive line of removable media options includes:

- Removable cartridge drives
- 3 1/2" & 5 1/4" magnito opticals
- ExpressDrive
- CD ROM

Every drive has a Silverlining.

Acclaimed the most powerful hard disk manager available, La Cie's Silverlining is included free with every hard drive!

Tape backup with Retrospect.

Tape drives from

$649

Tucked neatly inside our Cirrus case, La Cie's 155MB or 600MB tape drives and 1.2GB or 2.0 GB DAT drives come with Retrospect software offering easy, economical data protection.

Up to 5-year warranty.

Ask about our generous warranties. La Cie offers up to a 5-Year Limited Warranty on Quantum drives and a speedy 72 hour turn-around on all warranty service!

Ready for a drive.

Don't let the quest for the right mass storage solution drive you wild. Call us. Our friendly, highly qualified staff will gladly help you select the perfect device to suit your needs and budget.

"Silverlining has bailed me out of so many tough situations, I've lost count."
Bobker's Dozen Best, MacUser, December, 1990

"La Cie hard disks are the most reliable and convenient disks I've ever had..."
James J. Haf, Lansing, MI

LACIE LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

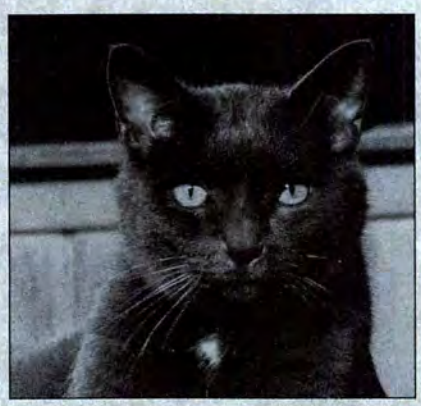
800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

We're proud



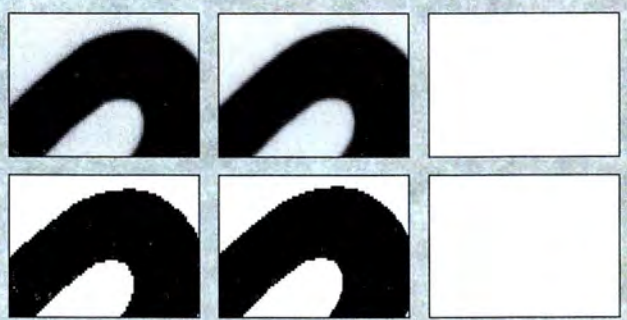
Microtek 600ZS $2,195*



Howtek Scanmaster 3 $8195**



La Cie Silverscanner $1,399



Microtek 600ZS 300 dpi at 1600%

Microtek 600ZS 600 dpi at 800%

Microtek 600ZS 1200 dpi at 400%—n/a

Howtek Scanmaster 3 300 dpi at 1600%

Howtek Scanmaster 3 400 dpi at 1200%

Howtek Scanmaster 3 1200 dpi at 400%—n/a

Image is everything.

We believe quality is a priority. Our image as a company that produces quality products is well known. We're so confident in the quality of our scanner image that we are willing to compare it to other scanners right here. Compare for yourself.

Great color the first time.

Just look at the difference in the color scans. The single-pass Silverscanner has three separate noble gas-filled lamps for red, blue and green that are balanced so you get great scans the first time. With Silverscanner's built-in gamma correction, you get clean, bright scans with excellent detail in those hard-to-get areas that don't require difficult adjustment like other scanners. This can mean substantial time savings when every second counts.

The shadow knows.

Do you want good shadow detail? Then compare the black and white scans. The Silverscanner can give you production quality gray-scale scans for magazines, newspapers and brochures.

Lay it on the line.

When comparing line art, the Silverscanner really shines! At 1200 dpi you get what amounts to an ***electronic stat***. The comparison is incomplete, however, because some scanners don't have hi-res capability (too bad). But even if you compare at 400 or 600 dpi, it's clear how much better the Silverscanner is, especially bundled with Color It!

La Cie Silverscanner with Color It

$1399

Price does not include shipping. Add 5% surcharge for American Express. Add sales tax where applicable. La Cie is a trademark of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. *Price advertised in Macworld, Sept. 91. **From Howtek price list, effective 3-1-91. All specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. Bundles in U.S.A. only.

Ad design and production by Graphic Witness. Subject photos by Dennis Carney. © Copyright 1991 La Cie, Ltd., 19552 SW 90th Court, Tualatin, OR 97062. Phone: (503) 691-0771, Fax: (503) 691-5590). All rights reserved. Printed in U.S.A

of our image.



Microtek 600ZS $2,195*



Howtek Scanmaster 3 $8195**



La Cie Silverscanner $1,399

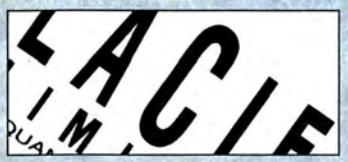


La Cie Silverscanner
300 dpi at 1600%

La Cie Silverscanner
600 dpi at800%

La Cie Silverscanner
1200 dpi at 400%

All scans were done at default settings with no corrections. The color images were separated using Adobe Photoshop. The logo was scanned as grayscale and as line art. This entire ad was done on the Macintosh using Silverscanner, Photoshop, Quark XPress and a PostScript Imagesetter. The entire production cost was $145.



La Cie Silverscanner
1200 dpi at 100%



Software to die for!

We're proud of our image when it comes to quality software, too. La Cie has always had a reputation for powerful, well-written software. La Cie's exclusive plug-in modules for Photoshop, ColorStudio, Digital Darkroom, Enhance, ImageStudio and RagTime have been hailed as some of the best software ever written for flat-bed scanners. Enjoy features like fast dynamic ***color*** previews, independent color/brightness controls, nine scan modes, savable scan settings, color dropout, magnified previews, proof scans, 25% to 400% scaling in 1% steps, and 25 dpi to 1200 dpi in 1 dpi steps.

Silverscanner is OCR and Apple System 7 compatable and can be purchased with full versions of Adobe Photoshop ***and*** Letraset's ColorStudio— a $2139 value for only $1899!

La Cie Silverscanner with
Photoshop and ColorStudio

$1899

Who ya gonna call?

La Cie offers you toll-free expert technical support. We know scanning inside and out. We can help you. And we'll be here for you tomorrow because La Cie is a Quantum Company.

Seeing is believing.

La Cie is so proud of the Silverscanner, we used it to produce this ad. Not just the comparisons, ***everything.*** Call and order yours today.

"The choice is clear . . . buy the La Cie Silverscanner."
Macworld, June 1991

LACIE
LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

See us at Macworld Expo! Moscone Center, Booth #625

We're proud of our value.

50MB Quantum $299*

50MB	$299 Int.	$339 Ext.	155MB Tape Drive	$649
100MB	$429 Int.	$479 Ext.	600MB Tape Drive	$1199
120MB	$529 Int.	$579 Ext.	1.2-2.0GB DAT Drive	$1799
200MB	$729 Int.	$779 Ext.	128MB MicroOptical	$1699
400MB	$1399 Int.	$1499 Ext.	ExpressDrive	$Call
1.2GB	$2749 Int.	$2899 Ext.	Silverscanner	$1399
80MB PocketDrive	$649		Silverlining	$149

Call for products not listed.

You'll be delighted at La Cie's competitive prices. Especially when you consider what you get absolutely free. Like our acclaimed Silverlining software. Five megabytes of public domain software. A 2-Year Limited Warranty on Quantum mechanisms (extendible to 5 years). 72-hour turn-around on warranty service. Prompt, courteous, competent service.

At La Cie, we take pride in the unsurpassed value we offer customers. From our state-of-the-art technology to our award-winning design, La Cie never stops working to bring you better products and services than ever before. And because we're a Quantum Company, you can be assured La Cie will continue to provide you service and support for years to come.

LACIE LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

*Prices subject to change. Please call for lowest current prices and volume discounts.

Lowest Prices • Great Service
Overnight Delivery • 30-Day MBG

1-800-222-2808
Canada Toll-Free: 1-800-548-2512
FAX (213) 542-9998

Mac CPUs

Mac Classic II 2/40	CALL
Mac LC 2/40	1799.00
Mac IIsi 3/120	CALL
Mac IIci 5/120	CALL
Quadra 700 4mb	CALL
Quadra 900 4mb	CALL
PowerBook 100,140,170	CALL

Call for other configurations.

HARDWARE

DISK DRIVES & CD ROMS

APPLIED ENGINEERING
- 1.44MB DISK DRIVE 210.00

IOMEGA
- BERNOULLI 90MB SINGLE 850.00
- BERNOULLI 90MB DUAL 1679.00

MASS MICROSYSTEMS
- DATAPAK 45 ..... 550.00
- DATAPAK 88 ..... 746.00
- DIAMOND DRIVE 310 ..... 1597.00
- DIAMOND DRIVE 510 ..... 2045.00

MACDEPOT
- CDROM W/ SOFTWARE 499.00

MICROTECH
- CD600 CDROM 705.00

- EUROPA 60 ..... 459.00
- NOVA 50 ..... 499.00
- NOVA 200 ..... 1099.00
- NOVA 400 ..... 1539.00

INPUT DEVICES

COSTAR
- STINGRAY TRACKBALL 85.00

EMAC
- SILHOUETTE TRACKBALL 85.00

KENSINGTON
- TURBO MOUSE 105.00

KEYTRONICS
- MAC PRO PLUS KEYBOARD 130.00

MOUSE SYSTEMS
- LITTLE MOUSE 75.00

WACOM
- 6X9 TABLET 499.00

OUR POLICIES

30-DAY MBG APPLIES TO DESIGNATED MANUFACTURERS ONLY.
CALL CUSTOMER SERVICE AT (310) 214-0000 FOR A RETURN AUTHORIZATION.
ALL RETURNS WITHOUT AN AUTHORIZATION NUMBER (RA #) WILL BE REFUSED. RETURNED PRODUCTS MUST BE IN ORIGINAL CONDITION AND PACKAGING AND MUST BE SENT BACK WITHIN 30 DAYS OF OUR INVOICE DATE. NO REFUNDS FOR FREIGHT CHARGES.
PRICES AND AVAILABILITY OF PRODUCT ARE SUBJECT TO CHANGE WITHOUT NOTICE.
PERSONAL CHECKS REQUIRE UP TO 10 WORKING DAYS TO CLEAR. INCLUDE: NAME, ADDRESS AND TELEPHONE NUMBERS (NO P.O. BOXES PLEASE). IF ORDERING BY CREDIT CARD, INCLUDE EXPIRATION DATE AND BILLING ADDRESS.
CALIFORNIA RESIDENTS (ONLY) ADD 8.25% FOR SALES TAX.

- 12X12 TABLET 715.00

MODEMS & FAXES

APPLIED ENGINEERING
- DATALINK 199.00

DOVE
- DOVEFAX 275.00
- DOVEFAX + ... 350.00
- DOVEFAX NUBUS 369.00

HAYES
- PERSONAL 2400 MAC BUNDLE 145.00

PROMETHEUS
- PROMODEM ULTIMA 9600 ..... 689.00
- PROMODEM 2496 MINIFAX PLUS ... 285.00

SUPRA
- FAX/MODEM 195.00

ZOOM
- FX9624 FAX MODEM 135.00

Hewlett-Packard



3-YEAR WARRANTY

Deskwriter
with cable $399.00
Deskwriter C
with cable $725.00

- PAINTWRITER 659.00
- PAINTWRITER XL 1,649.00
- SCANJET IIC 1349.00

DISPLAY SYSTEMS



Designer/8 19" System 2450.00
Designer/24 19" System .. 3099.00

- Colorpage E16 ..... 1099.00
- Colorpage T16 & SX 2914.00
- RasterOps 24XLI 4309.00
- Supermac Spectrum 24 .... 5079.00
- Supermatch 24 ..... 4650.00
- Publisher 15" Series 539.00
- Publisher 19" Series 865.00

PRINTERS & SCANNERS

CAERE
- TYPIST + GRAPHICS 463.00

MICROTEK
- SCANMAKER 600ZS 1430.00

NEWGEN - 30 DAY MONEY BACK GUARANTEE
- TURBO PS/300P 1699.00
- TURBO PS/400P 2299.00
- TURBO PS/630 ..... 2595.00
- TURBO PS/840 ..... 3795.00
- TURBO PS/840e 4595.00

QMS
- PS-410 ..... 1799.00
- PS-815MR 4209.00
- PS-825MR 4979.00

SEIKOSHA
- SP2400AP DOT MATRIX 255.00

MONITORS & VIDEO BOARDS

E-MACHINES
- COLORPAGE T-16 ..... 1799.00
- FUTURA EX 595.00
- FUTURA SX 1115.00

GENERATION SYSTEM
- TV BOARD 199.00
- TV BOX 199.00

NEC
- MULTISYNC 3FGX 695.00
- MULTISYNC 4FG 829.00

RASTEROPS
- 24S 499.00

VISA · MasterCard · American Express Card · DISCOVER

- 24SI 675.00
- 24SX 675.00
- COLORBOARD 264/SE30 ..... 599.00
- 8XLI 1029.00

SAMPO
- ALPHASCAN PLUS 450.00

SEIKO
- CM-1445 HI-RES MONITOR 575.00

SOFTWARE

BUSINESS

CAERE - 30 Day MBG
- OMNIPAGE 489.00

CLARIS - 30 Day MBG
- CLARIS WORKS 199.00
- FILEMAKER PRO 199.00
- MACPROJECT II 330.00
- MACWRITE II 129.00
- RESOLVE 269.00

INSIGNIA - 30 Day MBG
- SOFTPC ENTRY LEVEL 129.00
- SOFTPC UNIVERSAL 199.00
- SOFT AT 299.00

INTUIT - 30 Day MBG
- QUICKEN 45.00

MICROSOFT - 30 Day MBG
- EXCEL 3.0 ..... 305.00
- OFFICE 559.00
- WORD 245.00
- WORKS 165.00

ODESTA - 30 Day MBG
- DOUBLE HELIX 420.00

SYMANTEC - 30 Day MBG
- GREATWORKS 225.00
- MORE 250.00
- THINK C 199.00
- THINK PASCAL 159.00

WORDPERFECT - 30 Day MBG
- WORDPERFECT 269.00

DTP & GRAPHICS

ADOBE - 30 Day MBG (Except fonts)
- FONT LIBRARY ..... CALL
- ILLUSTRATOR W/ ATM 369.00
- PHOTOSHOP 549.00

ALDUS - 30 Day MBG
- DIGITAL DARKROOM 255.00
- FREEHAND 389.00
- SUPER 3D 319.00
- SUPER CARD 199.00
- SUPER PAINT 135.00

CLARIS - 30 Day MBG
- CLARIS CAD 589.00
- MACDRAW PRO 269.00

DENEBA - 30 Day MBG
- CANVAS 255.00

ELECTRONIC ARTS - 30 Day MBG
- STUDIO 32 ..... 409.00

GRAPHSOFT - 30 Day MBG
- MINICAD + ... 525.00

LETRASET - 30 Day MBG
- COLORSTUDIO 595.00

MACROMIND - 30 Day MBG
- MACROMIND DIRECTOR 669.00
- MACROMIND 3D 1050.00
- MEDIAMAKER 475.00

PARACOMP - 30 Day MBG
- FILM MAKER 429.00
- SWIVEL 3D 305.00

UMAX



UC-630

600 DPI, 24 Bit color scanner bundled with Photoshop. $1349.00

PIXAR - 30 Day MBG
- MACRENDERMAN & SHOWPLACE 639.00

QUARK - 30 Day MBG
- QUARK X PRESS 499.00

UTILITIES

CE SOFTWARE - 30 Day MBG
- QUICKEYS 2 ..... 93.00

CONNECTIX - 30 Day MBG
- HANDOFF II 57.00
- MAXIMA 45.00
- MODE 32 ..... 105.00

FIFTH GENERATION - 30 Day MBG
- JUKEBOX FIVE 149.00
- SUITCASE II 49.00

PowerBook Accessories



- Tenba Carrying Case $109.00
- Newer 4mb module $499.00
- Newer 6mb module $699.00
- T/maker Power Bundle .. $169.00
- PSI Power Modem $215.00

- FILE DIRECTOR 85.00

KENT MARSH - 30 Day MBG
- FOLDER BOLT 69.00
- MACSAFE II 105.00
- QUICK LOCK 35.00

LIFETREE - 30 Day MBG
- CORRECT GRAMMAR 50.00

SYMANTEC - 30 Day MBG
- NORTON UTILITIES 85.00
- SAM 65.00
- SUM II 99.00

ESTABLISHED 1985

MAC DEPOT

1-800-222-2808
4453 REDONDO BEACH BLVD.
LAWNDALE, CA 90260
Canada Toll-Free: 1-800-548-2512

Corporate, educational, and government purchase orders accepted.

CIRCLE 52 ON READER SERVICE CARD.

Syquest™

External

44MB w/Cart $419

Add'l Cartridges $66

88MB w/Cart $549

Add'l Cartridges $99

- 30 Day 100% Guarantee
- Two year instant replacement on Maxtor and "Q"uick Series
- One year instant replacement on Syquest, Conner and Seagate
- Call For Quadra Prices
- Lifetime toll-free tech support
- Government and University PO's accepted
- No credit card surcharge on Visa–MC–Amex
- Same day shipping on most products

(800) 338-4273

FAX (303) 442-7985

★★★★½ Gigabyte King!

HM1.2/15

$2025

"The superior driver software of the HM1.2/15 speeds it past the other Wren 7 based drives."

"Despite its bargin price, it ranked near the top in all performance tests."

- MacUser July 1991 -

"Q"uick Series

	Intl	Extl
52MB/12ms	$209	$269
105MB/10ms	$319	$379
210MB/10ms	$589	$649
425MB/13ms	$1099	$1179

CONNER

	Intl	Extl
40MB/25ms	$209	$269
60MB/19ms	$259	$319
80MB/19ms	$319	$379
210MB/19ms	$349	$409
200MB/15ms	$529	$589
540MB/12ms	$1189	$1249

Maxtor®

	Intl	Extl
60MB/17ms	$239	$319
80MB/17ms	$259	$329
120MB/15ms	$299	$369
213MB/15ms	$579	$639
340MB/13ms	$899	$969
360MB/15ms	$1149	$1249
535MB/12ms	$1599	$1709
675MB/17ms	$1395	$1495
1020MB/13ms	$1925	$2025
1500MB/13ms	$2499	$2599

Tahiti Optical Read/Write

	Extl
1020MB/35ms	$3199
Cartridges	$249

Seagate

	Intl	Extl
49MB/28ms	$239	$299
60MB/24ms	$339	$399
80MB/24ms	$359	$315
335MB/11ms	$1249	$1349
426MB/14ms	$1269	$1329
670MB/16ms	$1399	$1519
676MB/12ms	$1699	$1825
1020MB/15ms	$1949	$2089
1420MB/15ms	$2399	$2499

MAYOR'S SPECIAL

MAXTOR 7120S

120MB/17ms

$299

MacTown

1431 S. Cherryvale Rd.

Boulder, CO 80303

CIRCLE 19 ON READER SERVICE CARD.

MacSource's New Year Sale!

OPEN M-F: 8AM - 9PM Sat & Sun: 12 - 6PM



Macintosh IIsi

IIsi, 5mb RAM, 105mb Hard Drive, Standard Keyboard, 16" ColorPage E-16, with 8 bit color.

Call for Price

Mac Quadra System

Quadra 700, 8mb RAM, 426mb Hard Drive, Extended Keyboard, ColorPage E-16, 832x624 resolution, 8 bit color.

Only ... $7,169

Classic 4/40 Sale

Classic, 4mb RAM, 40mb Hard Drive, Standard Keyboard.

Only ... $1209

America's Fastest Growing E-Machines Dealer!



ColorPage E-16

Quadra Compatible!

Macintosh Quadra, IIci, IIsi, & LC built-in interface!

E-MACHINES *Authorized Dealer*

Color Displays

Award Winning ColorPage T/16 ..... $1750

★★★★★ *The T-16 Judged Best 3 years running by MacUser. 832 x 624 Resolution!*

E-Machines TX16 ..... $1750

E-Machines T19 ..... $2950

Color Interface Cards

Futura EX $575

24-bit Accelerated NuBus interface card for the Apple 12 and 13-inch displays, ColorPage E16, and Mac compatible displays with 640 x 480 resolutions. On board acceleration, virtual screens, and pan and zoom.

Double Color Board for the T16 ..... $350

Futura SX/8 ..... $695

Futura SX $1050

Futura MX $1400

E-Machines TXsi and T19/si $900

E-Machines TXSE30/8 ..... $900

E-Machines T19SE30/8 ..... $900

Options

Futura SX/8 to Futura SX Upgrade $345

Futura EX to Futura SX Upgrade ... $490

Have a Lower Price? Call us, and see what we can do for you!

Zoom 9600 Baud Modem



9600 V.42/V.32 dual standard Zoom modem. 2 Year Warranty.

On Sale for Only **$419**

Zoom MX2400E **$85**

(Includes Cables & Software)

JETFILL

Ink Refills



The Clean, Easy, Affordable way to refill your StyleWriter and HP Ink Cartridges.

2 Pack ... $16.50

Over a Zillion Other Macintosh Products. Call for Prices and Information.

Our friendly sales staff is here to help!

Call for the Best Prices on Macintosh CPUs!

CALL TOLL FREE **1-800-925-2622** **MacSource**



MacSource™ • 7801 North Lamar, Suite E-190 • Austin, Texas 78752 • (800) 925-2622• FAX: (512) 467-2642

Technical Support: 1-800-723-2622• International Quotes: (512) 467-9652 • Prices Subject to Change without notice.

©1991 MarSpec, Inc. MacSource is a trademark of MarSpec, Inc. Apple and Macintosh are trademarks of Apple Computer Corporation. Group Sales Photo ©1991 PR Dunn Photography. All other trademarks are property of their respective holders. E-Machines, The E-Machines Logo, and ColorPage are trademarks of E-Machines.

CIRCLE 48 ON READER SERVICE CARD.

MACROMIND

Some Pros Say
This Company's
Multimedia Products
Are The Best.

PARACOMP

Some Pros Say
This Company's
Multimedia Products
Are The Best.



MacroMind Director®

The industry standard for authoring high-impact, professional multimedia presentations, animations and interactive applications. Current *MacroMind Player* technology enables interactive playback on Windows 3.0, Macintosh and soon, other leading computer platforms. Create, combine and synchronize graphics, text and animations with audio and video. Add full interactivity with buttons and scripts. Incorporate 3D models from *Swivel,* animation from *MacroMind Three-D,* sounds from *MacRecorder* as well as all standard Mac file formats.



Version 3.0. Suggested list, $995.

MacroMind Accelerator™

Speeds *MacroMind Director* and PICS animations to professional levels of up to 60 frames per second for smoother action and less screen flicker. Features tempo control for easy synchronization of audio and animation. Includes XCMD for HyperCard® stacks.
Version 3.0. Suggested list $195, buy direct from us.



MacroMind Windows Player™

Converts fully interactive *MacroMind Director* productions created on the Macintosh® to Microsoft® Windows® 3.0 for playback. Supports Windows Multimedia Extensions for complete interactive control of CD-Audio, digitized sound and video. Includes a license-free distribution policy for projectors.
Version 1.0. Suggested list $995, buy direct from us.



wide rang
hierarchic
unlimited
maps, sha
and Rend
Version 1.



ModelShop II™

Create and manipulate realistic spatial models with this completely interactive design and presentation tool. Quickly create models in hidden surface perspective with CAD-like accuracy. Add professional animation with *MacroMind Three-D* for real-time walk-through of architectural models, landscapes and visualizations. The perfect tool for architects and design professionals.
Version 1.2. Suggested list, $895. ★★★★½



FilmM

The or
prog
enc
an
br
Bui
betv
sequer
Director.
Arnet™ video
sional quality animation effect
Version 2.0. Suggested list, $6



Swivel 3D Professional 2.0

NEW VERSION!

Model, move and handle objects with this complete modeling and design environment. Hierarchically link object parts. Export 3D views and vector-based 2D drawings. *Swivel 3D* models are compatible with *MacroMind Three-D* and *MacroMind Director* for adding advanced animation to 3D models. Supports 24-bit color, full screen display, Pixar MacRenderman™ output, AutoCAD™ DXF output, EPS, Adobe® Illustrator,® PICT and PICS files.
Version 2.0. Suggested list, $695. Upgrade for just $75. See order form.

SwivelMan A special version of Swivel 3D Professional 2.0 that includes Pixar® MacRenderman,® 1.1. Documentation and tutorials are included to present the applications as one integrated solution. Users can create 3D models and render those models by applying photorealistic textures and shaders in one application.
Suggested list, $895. Upgrade for just $175.

MacroMind, MacroMind Director, MacroMind Windows Player, MacroMind Accelerator, MacroMind *Action!*, MacroMind Three-D, MacroMind MediaMaker, MacroMind TitleMaker, ClipMedia, MacRecorder, SoundEdit, and MacroMind • Paracomp Magic are trademarks or registered trademarks of MacroMind • Paracomp, Inc. All other marks are owned by their respective companies.

Order today!
Special offer ends
March 31st.



MacroMind Three-D™

A professional tool for creating high-quality 3D animations and photo-realistic images for use in video and multimedia productions. Imports a
of model file formats and provides a
time-line for easy animation of
hapes, lights and cameras. Import
odels from *Swivel 3D* and export
animations to *MacroMind Director.*
Supports video animation controllers,
nage special effects (bump and texture
ows, etc.), 3D text from TrueType fonts
Man RIB.
Suggested list, $1,495.

aker™

2D, 8- and 24-bit animation
am on the market with transpar-
color animation and full-screen
aliasing/anti-flickering for
adcast quality text and images.
and animate hierarchical links
en graphics for elaborate motion
es. Export PICS to *MacroMind*
orks with Diaquest™ and ARTI®
evice controllers. Offers profes-
for video and multimedia producers.
5.



ClipMedia™

NEW!

A high-quality, royalty-free collection of 250 sound effects, 75 animations, 50 digital video sequences, 50 music pieces and 75 graphics. Use these multi-media elements as needed in business presentations and video productions. Available on CD-ROM for Macintosh and Windows users. Volume 1 for Business & Technology.
Suggested list $395.
Special introductory offer, order direct from us and save 40%.
See order form.



MacroMind MediaMaker™

The application of choice for assembling and synchronizing video, CD-Audio with Macintosh graphics, sound and animation. Create video productions and presentations on the Mac. Control external devices: videotape recorders, camcorders, videodisc and CD-ROM players. Compatible with popular Macintosh video overlay cards for video-in-window, titling, transitions and special effects. Fully automated Print-to-Video command allows accurate, easy output to videotape.
Version 1.0. Suggested list $695.

MacroMind TitleMaker™

NEW!

Create professional-looking, animated titles and credits to increase the impact of business, education and home videos. Includes over 150 customizable templates. Replace template text and graphics with your own. The perfect complement to *MacroMind MediaMaker. Version 1.0.*
Suggested list $149, buy direct from us.



Magic

NEW!

MacroMind•Paracomp Magic™ is an exciting, entry-level multimedia program that features a draw-like environment and tool palette. Simple concepts of "actors," "stages" and "scenes" help novices create moving text and graphics with sound. Includes sophisticated Bezier path/object modification, transparency, pre-defined templates, support for ATM™ and TrueType™ fonts, and interactivity via on-screen buttons.
Version 1.0. Suggested list, $395.



SwivelArt™ Collections

Integrate any of these 3D graphics—royalty free—into multimedia productions, presentations and print publications. Images can be rotated, resized, viewed, scaled, lighted, anti-aliased and used in any perspective or color.

Special. Buy direct from us and save 40%.	Suggested list price
☐ 3D Viewpoint Cars	$250
☐ 3D Maps I	$250
☐ 3D Maps II	$250
☐ 3D Graphics Original	$129.95
☐ 3D Viewpoint Air and Sea	$250
☐ 3D Viewpoint Anatomy	$250

See order form.



We Couldn't
Agree More.



Since the beginning of Macintosh® time, nearly three out of four multimedia packages have had one of two names on the box.

PLAY MacroMind. Or Paracomp.

So if you don't already own a few of our products, you probably know a lot about us anyway.

LOOP Still, we thought you'd like to know that we've merged.

What's more, we've just acquired MacRecorder® and SoundEdit from Farallon.

Which means that all your favorite multimedia packages—plus a few new ones—can now be had in one place.

STEP So take a look at our full line of products to the right.

And take advantage of this month's great upgrades and special introductory prices.

REW Call us at 1-800-248-4477, Ext. 200.

You can order the upgrades and specials direct. Or get free product info.

For just $24.95, you can get a Multimedia Info Kit™—complete with videos, demo disks, configuration guides, detailed how-to booklets. And more.

BACK If you'd like to see our products firsthand, just visit your nearest multimedia dealer.

Ask them what's best.

STOP They'll show you MacroMind. Or they'll show you Paracomp.

It's all the same to us.



MACROMIND
PARACOMP
The Multimedia Company

FOR PROFESSIONALS ONLY?

Multimedia can spice up day-to-day presentations and add to your sales tools arsenal—without turning you into a multimedia maniac.

Put the words "presentation" and "computer" into one sentence and most of us think of two distinct kinds of people.

Multimedia professionals who use high-powered software and the latest high-tech hardware to produce large scale presentations for a living.

And business people who, in the course of *making* a living, use static presentation packages like PowerPoint® and Persuasion® to create overheads and slides.

Well, those distinctions are blurring fast.

Because two new products—*Action!* and *Magic*—have created a happy gray area between the pros and the rest of us.

Now, previously humdrum day-to-day presentations can come to life with animation and sound.

And professional looking multimedia shows can be created with a minimum of knowledge and equipment.

Lights, computer, action.

Action! a new Windows product from MacroMind • Paracomp, is designed for business people who use their desktop, portable or laptop PCs to create and deliver presentations.

By using *Action!* and a PC to present, you get the added impact of motion, sound and interactivity—without the hassles of setting up projectors and fumbling with overheads.

Action! even lets you create interactive presentations you can customize as you go. If someone in the audience has a question, you can branch off to a different part of the presentation and then return to where you left off.

Action! includes 120 professionally designed templates set up for bulleted lists, charts, graphics and more. You can



Magic is multimedia made easy.



Create instant multimedia presentations with Action!

select an appropriate template. Put in your own text and graphics. And quickly get the show on the road.

Action! lists for $495 and runs on IBM PCs and compatibles with Windows 3.0. Does not require Multimedia Extensions.

Multimedia made easy.

Like *Action!, Magic* doesn't require extensive multimedia knowledge or lots of extra hardware.

But make no mistake, this *is* a multimedia package—perfect for everything from interactive advertising kiosks to whiz bang presentations for stockholder meetings.

Magic includes full animation capabilities, support for sampled sound, object transparency and Bezier path/object modification.

If you or the people you work with don't know what that means, don't worry.

When you open *Magic* for the first time, you'll see a desktop that looks just like the drawing and painting packages you're used to.

To simplify the creation of moving text and graphics with sound, *Magic* uses "actors," "stages" and "scenes"—intuitive concepts that are easy to grasp without reading the manual.

Magic runs on any Macintosh SE, SE/30, LC or any Mac II with 2 MB RAM.

List price is $395.

ACTION! WINS MVP AWARD AT COMDEX

Although Action! has just recently been introduced, it has already won a major industry award.

At this year's Fall Comdex, Action! captured PC/Computing's coveted Most Valuable Product Award, which is given to products that combine new technology with real usability.



SAVE $50



Here are two pieces of news you'll definitely want to hear about.

★★★★½ MacRecorder® Sound System—the package that gives you everything you need to add sound to your multimedia productions—is now a MacroMind • Paracomp product.

PLAY And if you call us before March 31st, we'll send you MacRecorder Sound System 2.0 for just $199.

If you think saving $50 sounds good, just wait till you hear what this famous sound product can do.

You can sample different sounds —voice, music or effects—with the MacRecorder digitizer mike.

Or edit any sound, adding reverb, filtering, looping and more, with SoundEdit™ 2.0.

And juice up your presentations, animations, HyperCard stacks—even E-mail —with the impact of audio.

LOOP So call us at 1-800-248-4477 Ext. 200. And ask for MacRecorder.

At this special introductory price, it's the only sound thing to do.

MACROMIND
PARACOMP
The Multimedia Company

Order direct at great savings.
Order today and get great prices on software upgrades, ClipMedia and SwivelArt.

Want to know more?
Check here for ☐ free information on MacroMind • Paracomp multimedia products, or ☐ a Multimedia Intro Kit, complete with videos, demo disks, configuration guides, how-to booklets and more, just $24.95!

Upgrades
Swivel 3D Professional Registered Owners:
Save money and upgrade today.
☐ Swivel 3D Professional 2.0 Upgrade for just $75
☐ SwivelMan Upgrade for just $175

Call, or send this order form to:
MacroMind • Paracomp, Inc. 600 Townsend, San Francisco, CA 94103
Offers good only in U.S. and Canada.

ClipMedia and SwivelArt
Save 40% on seven professional-quality, royalty-free packages.

Animations, Sound Effects, Music Digital Sequences and Graphics
☐ ClipMedia Volume 1, Business and Technology. Order now for $237, a savings of over $150! Specify CD-ROM for Macintosh or Windows.

SwivelArt 3D Graphics
☐ 3D Viewpoint Cars, $150
☐ 3D Maps I: North and South America, $150
☐ 3D Maps II: Africa, Asia, Australia, Europe, $150
☐ 3D Graphics Original, $79
☐ 3D Viewpoint Air and Sea, $150
☐ 3D Viewpoint Anatomy, $150

☐ MacRecorder Sound System 2.0, $199. Save $50.

Product Name	Quantity	Cost—Each	Total
			.
			.
			.
			.
		Total Merchandise	.
		Sales Tax (IN 5%, CA 8¼%)	.
		Shipping & Handling	$10.00
		TOTAL	.

I enclose my check for $ _____

Or charge my MasterCard ☐ MasterCard VISA ☐ VISA AMERICAN EXPRESS ☐ AMEX

Exp. date: _____

(Payable in U.S. dollars.)
Offers expire March 31, 1992.

Name _____

Address _____ Apt. # _____

City _____ State _____ Zip _____ Telephone # ( ) _____

Offers good only in U.S. and Canada.

☎ 1-800-248-4477 Ext. 200

Move Over SyQuest,™ Optical Just Got Affordable.



Introducing the DGR Technologies 3.5" 128MB Read/Write Optical Drive

"With their high capacity, imperviousness to magnetic fields, and small size, 3.5-inch erasable optical drives promise to be a superior alternative to magnetic SyQuest, Ricoh, and Bernoulli drives." – MacUser, November '91

SyQuest revolutionized hard disk storage with **portability** and speed. Now, DGR Technologies ups the ante: 128 megabytes of removable, erasable optical storage on **fast**, ultra-reliable 3.5" disks. The 128REM™ represents substantial media savings over SyQuest 45MB and 88MB technology – do the math. The real savings, though, is peace of mind. Optical storage spells **reliability**: No more head crashes and no more magnetic data corruption. Above all, the **128REM™** is built to perform: 9 millisecond average short seek time and a built-in 128K buffer translate into significant improvements over current removable standards – giving you the capacity and **performance** you've been waiting for. The 128REM™ is built with the future in mind, conforming to both ANSI and ISO standards, ensuring future **compatibility**. Price. Performance. Reliability. The DGR Technologies 128REM™.

$1,499



$99	128 megabyte optical cartridge
9ms	short seek access time
3.5"	erasable disk cartridges
1yr	direct replacement warranty
30	Day Money Back Guarantee

VISA MasterCard DISCOVER

To Order Call TOLL FREE Monday-Friday 9am to 6pm CST
DGR Technologies accepts MC, Visa, Discover, Pre-Paid, COD, & Wire Transfer Orders.

Order Direct 800-235-9748

DGR Technologies • 1800 Rio Grande, Suite 205 • Austin, Texas 78701 • 512/476-9855 • Fax 512/476-6399

dgr technologies

© DGR Technologies Inc. All brands and product names are trademarks of their respective holders.

Thanks for helping us make the move...

Thanks to our loyal customers, we've moved to the front of MacUser. Now even more people will learn about the discount mail order prices and friendly service we've been offering for over 6 years!

HARDWARE THAT FITS
1-800-972-3018

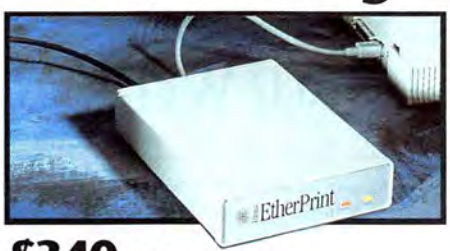


Several members of our management team (left to right): Barbara, Jim, Lew, Réal.

WE ONLY SELL NAMES YOU CAN TRUST.

RasterOps
MICROTEK
Applied Engineering®
Real Tech™
ASANTÉ
Texas Instruments
PLI

See our 2 ads (pages 128-129 and 150-155) for other great values!!!



$340 EtherPrint



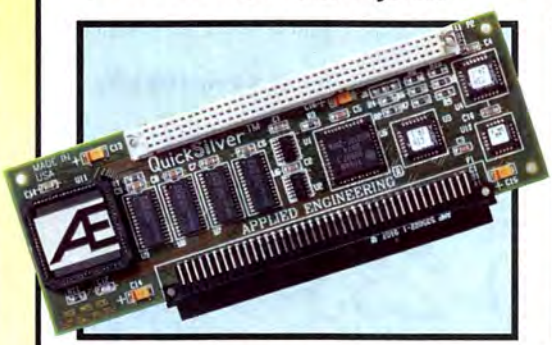
$1429 Microtek Scanner



$5819 RasterOps 24XLTV 21" Color System



$3845 Mac IIci 14" Trinitron



$219 QuickSilver IIsi Cache Card w/PDS Adapter



$1995 RealTech Laser

Prices are subject to change without notice. Satisfaction guaranteed or we'll refund your purchase price (minus consumables, for printers). Before returning merchandise, we must ask that you call our Customer Service Dept. to receive a returned merchandise authorization number (RMA). This number must be included with any printer you return. No C.O.D. returns, please.

CIRCLE 198 ON READER SERVICE CARD.

EDUCATIONAL RESOURCES™

USA/Canada Toll Free 800-624-2926

Illinois 708-888-8300

Your #1 Source for Educational Software & Technology Needs

Parents & Teachers Take Note: call now for your FREE Educational Macintosh Catalog!

Save up to 60%

- ✔ Educational Software
- ✔ Consumer Versions
- ✔ School Versions
- ✔ Lab Packs
- ✔ Accessories
- ✔ CD-ROM & LaserDisc

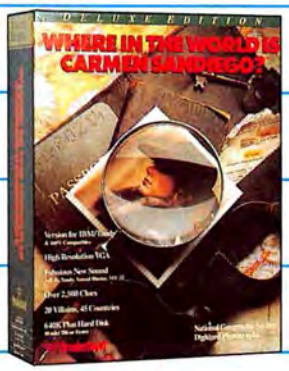




$29.95 MAC CD-ROM



$65.95 MAC each
$189.95 for all three



$55.95 MAC/IBM
School Version $71.95



$29.95 MAC NEW!
CD-ROM



$27.95 MacPaint each

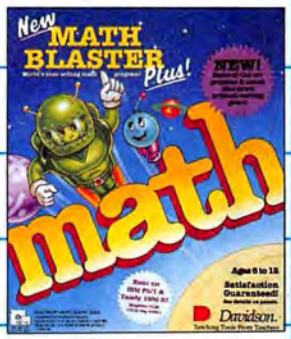
$55.95 EPS (School Spirit only)



$54.95 NEW! MAC
School Version $94.95



$99.95 NEW! MAC



$38.95 MAC
School Version $48.95

EDUCATIONAL RESOURCES • 1550 Executive Drive • Elgin • IL • 60123

- Checks & School P.O.'s welcome
- $25 min. on charge cards
- Free shipping over $300 in U.S.
- Under $300 add 5% shipping w/ $4.00 min.
- Canada under $200 add 10% w/ $5 min. / over $200, add 5% — also add 7% GST
- Prices effective through April 30,1992

VISA MasterCard DISCOVER

CIRCLE 112 ON READER SERVICE CARD.

COME SEE US AT MACWORLD, BOOTH # 1926, MOSCONE CENTER

128MB OF STORAGE FOR ONLY $79. THE NEW $1499 MAGIC 128REM OPTICAL!

128MB of storage on a removable 3.5" disk! No bigger than a floppy! MacProducts does it again with a price of only $1499

MacProducts USA

Since 1985



Magic 45R $449
Magic 88R $599
SyQuest Mechanisms

SOFTWARE

	BUY	LEASE
Aldus Gallery Effects	$239	$7
Claris Resolve NEW!	$289	$8
FileMaker Pro	$199	$6
Liaison	$269	$8
Microsoft Word	$229	$7
MiniCAD +	$499	$15
InfiniD 3D Modeling	$669	$20
Norton Utilities	$87	$3
PageMaker 4	$489	$14
PhotoShop 2.0	$569	$17
Soft PC /EGA AT Bundle	$335	$7
Symantic Anti Virus 3	$64	$2
Symantic Utilities Mac	$95	$3



Quark XPress
NEW! Version 3.1
$539

System 7 $90

MAGIC CPU & PRINTER MEMORY

	BUY	LEASE
1MB SIMMs 60 – 120ns	from $29	$1
2MB SIMMs	$85	$2
4 & 16MB SIMMs	$149/$799	$6
MAC LC 8-bit Video RAM	$79	$3
Portable RAM 1-8 MB	Call	Call
Classic Upgrade 2/4MB	$49/$99	$2
GCC PLPII/S 1MB	$69	$2
HP 1/2/4MB	$99/$179/$239	$3
LZR 960 2/4/8MB Upgrade	Call	Call
QMS 2/4MB	$199/$359	$6
TI 1MB RAM Upgrade.	$75	$3



1 MB SIMMs from
$29
Lifetime Guarantee



MAGIC
SIMMs
1MB SIMMs
from $29

HARD DRIVES AND STORAGE

	BUY	LEASE
Drive mechanism prices.		
2 year warranty included.		
Internal Kit $29 • External Case Kit $99		
40MB Hard Drive	$199	$6
52MB Quantum low profile	$239	$8
105MB Quantum low profile	$369	$14
210 MB Quantum	$699	$24
300MB Seagate*	$1399	$45
300MB Wren Runner*	$1650	$54
600MB Seagate*	$1899	$60
600MB Wren Runner*	$2199	$69
1.2GB Seagate*	$2695	$85



*MagicDrive Extended Warranty Available $75/ year

MAGICDRIVE ACCESSORIES

Double-Up compression	$175	$6
Magic SCSI II Accelerator	$899	$27

MAGIC SYQUEST REMOVABLE DRIVES

Includes 2 Year Warranty and the Magic 30 Day Money Back Guarantee
40 watt power supply, Cable & Software.

Magic SyQuest 45R	$449	$14
Magic SyQuest 88R	$599	$24
SyQuest Cart 45MB	$69	$2
SyQuest Cart 88MB	$119	$4



"The Magic 45 is one of the best SyQuest drives available, offering high speed and high quality."
- MacUser ★★★★

MAGIC REMOVABLE OPTICAL DRIVES

The 128MB REM has a seek time of less than 35ms and a burst mode of 9ms. Includes MagicDrive case with a 40watt power supply, SCSI cable, software, and One Year Warranty. Internals available for Mac Quadra 900 and PC users.

Magic 128MB REM	$1499	$45
Magic 128REM 3.5" Cart	$79	$3
600 MB Ricoh ISO	$2599	$78
600 MB Sony ISO	$3199	$96
1 GB Tahiti Maxtor	$3995	$120
Optical Cartridges	Call	Call



Magic 128MB REM
- 35ms access time
- 9ms fast access mode
- 40watt power supply
- One Year Warranty
- Removable 3.5" disks
- Magic Reliability
- $1499

MAGICTAPE BACKUP

Includes Retrospect, 2 year warranty, & Magic 30 Day Money Back Guarantee.
40 watt power supply, Cable & Software

MagicTape 150MB	$699	$21
MagicTape 525MB	$999	$30
MagicTape 1.3GB DAT	$1695	$51
MagicTape 2.0GB DAT	$1695	$51
MagicTape 2.4GB 8mm	$2895	$87
MagicTape 5.0GB 8mm	$4499	$135



MagicTape 60
"Fastest in it's class"
- MacUser ★★★★½

MagicTape 1.3
"The winner in the DAT (1.3GB) category"
- MacWorld

CD ROM DRIVES

Magic CD ROM (Toshiba)	$529	$19

Many CD-ROM software titles available!

STORAGE OPTIONS

Bernoulli Removable 90	$969	$29
Pinnacle REO130 Optical	$1849	$81
PLI Infinity Turbo 88	$899	$41
Micronet 88 Removable	$899	$36



UK FAX 800-891-742 • SINGAPORE 65-287-5181 • CANADA 800-624-9307 • USA 1-800-622-3475

LEASING: Prices quoted reflect 48 month lease based on credit approval. Minimum $50 month lease. Terms available from 24 to 60 month periods.

MacProducts USA Carries Over 9,000 Products for your Macintosh

Affordable leasing available for the entire MacProducts USA inventory. Leasing prices are denoted in the gray shaded area.

Magic Modems & Fax Modems

	BUY	LEASE
Magic 2400/1200/300 baud modem. 100% Hayes compatible. Includes 2 year warranty.	$69	$3
Magic 2400/9600 SendFax modem 100% Hayes & Group 3 compatible Includes 2 year warranty	$99	$3
Magic 2400/9600 FaxModem 100% Hayes & Group 3 compatible Includes 2 year warranty	$149	$6
Magic 2400 V.42 bis MNP-5 Modem 2400 V.42 bis MNP-5 Modem. Transmit data up at speeds up to 9,600 baud. Includes 2 year warranty	$149	$6
Magic 9600 V.32/V.42bis MNP-5 Modem Transmit data at speeds up to 38.4k baud. 2 year warranty	$399	$12



Magic 2400 Baud Modem **$69**



Magic 2400 V.42 bis MNP-5 Modem **$149**



Magic 2400
2400 Baud Modem
2 Year Warranty **$69**

Magic 9600 Turbo
V.32/V.42bis MNP-5 Modem
38.4k Baud. Software Included **$399**

Macintosh Systems

	BUY	LEASE
THE NEW MAC'S! Call for pricing!		
Macintosh PowerBook 100	Call	Call
Macintosh PowerBook 140	Call	Call
Macintosh PowerBook 170	Call	Call
Macintosh Classic 4/40	$1237	$37
Macintosh Classic II	Call	Call
Classic II or LC 68882	$99	$3
Macintosh LC	$1625	$54
Macintosh IIsi	$2299	$72
Mac IIsi 2 Slot Adapter	$49	$2
Macintosh IIci	$2850	$98
Macintosh Quadra 700	Call	Call
Macintosh Quadra 900	Call	Call
Quadra VRAM	$49	$2
Extended Keyboard	$99	$3





Networking Solutions

	BUY	LEASE
MacProducts carries networking solutions from **APPLE, ASANTE, CAYMAN, SHIVA, FARALLON, SITKA, MORE**		
MagicNet (localtalk)	$19	$1
Magic EtherNet	$199	$6
Farallon PhoneNet	$30	$1



Video Solutions

"For a good deal on 19-inch Ikegami...check out the MacProducts Magic-View"- MacWorld Oct 91

MacProducts USA carries a complete line of Video from **RasterOps, Radius, E-Machines, SuperMac, NEC, and More!**

Magic Video Solutions

Magic 19 or 20"24-bit card. Block mode & accelerator compatible	$1299	$39
Magic 13" 8-bit color cd II	$269	$9
Magic 20" Trinitron	$2099	$63
Magic 19" or 20" 8-bit card	$499	$15



Magic 20" Trinitron Color Monitor **$2099**

Scanners



Wide Selection of Scanners Available
SPECIAL MICROTEK PRICING!
MacProducts carries **UMAX, Sharp, Microtek, Abaton, Canon, and More!**

Printers

	BUY	LEASE
Apple StyleWriter	$439	$14
HP DeskWriter	$449	$14
QMS PS 410	$1799	$54
Microtek TrueLaser	$1399	$42
GCC Laser Printers	Call	Call
JetInc. Deskwriter/Stylewriter Refill		$11.
Seikosha SP2000 Dot Matrix	$209	$61
We carry **NEC, Abaton, Mictotek, & More!**		



TI microLaser Plus
NEW! 9ppm Engine
PS/17 **$1319**
PS/35 **$1649**

Magic Accelerators

	BUY	LEASE
RAM-disk, improved SCSI throughput. Available math coprocessor. 1 yr warranty. Available for the Plus, SE, & Classic.		
MagicCache IIsi, SE/30	$259	$9
MagicCache IIci	$169	$5
Magic RailGun030 16 MHz	$399	$12
Magic RailGun030 25 MHz	$599	$21
Magic RailGun030 33 MHz	$899	$30
RailGun SCSI Accelerator	$49	$2
16 MHz 68882 Coprocessor	$99	$3
MagicMath LC Coprocessor	$99	$3
Accelerators/Cache Cards –all models!		
DayStar PowerCache IIci 40MHz	$1119	$34
Radius Rocket 040	$1899	$78



Magic RailGun 030 "IIci computing power in a Plus" –MacUser



NEW! TokaMac 040 Accelerators starting at only $2099 for the LC, SE/30, IIsi, & IIci



Magic RailGun 030
16, 25, & 33MHz
Mac Accelerators
Starting at $399

Circle 137 on reader service card.

To Order Call: 1-800-622-3475 or (512) 472-8881
Hours: M-F 8am-9pm Sat 10am-6pm
Cust. Service (512) 472-8881 ext 631
Tech. Support: (512) 472-8881 ext 628
24 hr Fax Line: (512) 499-0888

Intl. Orders: Call or fax **Leasing:** Yes! Flexible terms & quick approval make it easy to lease. **Tax:** Texas Residents add 8%

Payment: Visa, Mastercard, Discover. Your credit card is not charged until your order is shipped! Wire transfers, approved company and institutional PO's. (Net 15). $5 charge for COD, cashiers checks.
Shipping: Airborne. $10 min shipping charge. All major carriers available.
Returns: Returns require RMA #. Please call (512) 472-8881. Ext 625. All returns subject to a restocking fee. Shipping and handling not refundable.

Opened software is not returnable. All Magic products (except memory) carry a 30 day money back guarantee (call for details).
Terms: Item availability and price subject to change without notice. Some products subject to back order.

Address: MacProducts USA
608 West 22nd Street
Austin, Texas 78705

February 92

24 HR FAX 512-499-0888 1-800-MAC-DISK

YOUR ONE SOURCE FOR COMPLETE MAC SOLUTIONS

WHY YOUR NEXT PURCHASE SHOULD BE FROM ABC

SERVICE

- Friendly, knowledgable sales & support consultants ready to serve you, with Toll-Free Ordering and Tech Support
- Express Delivery Available anywhere in the world
- Once you place your order, your system will be configured according to YOUR needs,then burned in and tested before shipped
- Education, Government and Institutional Purchase Orders Are Accepted
- EXPRESS TWO-DAY SERVICE on ALL SOFTWARE PACKAGES for only $6



SUPPORT

- All purchases are backed by our 30-day absolute satisfaction money-back guarantee, 1 full year limited warranty & our Express Replacement Policy
- Buy with confidence, as ABC is a strong and rapidly growing company with experience and skill in both Mac and PC Markets
- All together, there's nothing like buying from ABC, your one source for all your Mac solutions



LEASING

CALL OUR DEDICATED LEASING SPECIALIST, KEN, TO SERVE YOU WITH:

- INTERNATIONAL LEASING
- PERSONAL LEASING
- NEW & ESTABLISHED BUSINESS LEASING

$ 25,000 Business Lease Line of Credit Available in 15 Minutes, Call Today!

Software



NEW!! ADOBE PREMIERE!
The digital movie-making tool for combining video, audio, animation, still images, graphics & more!
CALL FOR PRICE

ADOBE ILLUSTRATOR $385
ADOBE PHOTOSHOP $425

SPREADSHEET WARS! LOWEST PRICES!

Claris **RESOLVE** $272



Lotus **1-2-3** $345





Microsoft **EXCEL** $305

ALDUS FREEHAND $379
High-end PostScript graphics package - a long time favorite



ALDUS PAGEMAKER $499
Grandfather of Desktop Publishing Programs. Ease & Power. FREE ALDUS PREPRINT WITH PURCHASE OF PAGEMAKER!

CLARIS FILEMAKER PRO $379
#1 Favorite is Flexible, Powerful, Easy-To-Use Database
CLARIS MACWRITE II $135
FREE CORRECT GRAMMAR & UPGRADE TO MACWRITE PRO!
CLARIS WORKS $210
INTEGRATION HAS NEVER BEEN THIS EASY OR POWERFUL!



QUARK XPRESS $479
Full Color, Sophisticated DeskTop Publishing

STATE-OF-THE-ART GAME MADNESS!

INLINE DESIGN MUTANT BEACH $49
INLINE DESIGN 3 ON THREE $35
BRODERBUND SIMANT $45
SPECTRUM HOLOBYTE VETTE $44
CASADY & GREENE GLIDER $35
ME & JOHN MADNESS - RAGE! $25

Monitors



E-MACHINES T-16 Futura SX SYSTEM $2695 or $80* (p/mo. on lease)
24-Bit Accel. Card w/ Spectacular Trinitron 16" Color Monitor

PRICE/LEASE PRICE

E-MACHINES E-16 8-BIT BUNDLE ..... $1399 / $41 mo.*
E-Machines quality 16" 832 x 624 Color Monitor & 8-Bit Card (256 Colors) at a Breakthrough Price! (NUBUS)
E-16 8-BIT BUNDLE FOR LC ..... $1450 / $43 mo.*
GENERATION SYSTEMS 19" MONO MONITOR $875 / $26mo.*
Sharp Two-Page Monochrome Monitor & Card
19" GRAY SCALE MONITOR & CARD ..... $1295 / $38 mo.*
IKEGAMI CT-20 TRINITRON 24-BIT SYSTEM ..... $2995 / $89 mo.*
Quality 24-Bit 20" Trinitron System at Unbeatable Price!
CT-20 8-BIT TRINITRON SYSTEM ..... $2495 / $74 mo.*
RASTER OPS 19" 24-BIT SYSTEM ..... $5250 /$155 mo.*
24XLI Accel. 24-Bit Board & spectacular 19" Color Trinitron Monitor
SEIKO 14" COLOR MONITOR ..... $569 / $17 mo.*
Sony Trinitron Quality in 14" Mac Monitor
SIGMA FULL PAGE GRAY SCALE MONITOR ..... $555 / $16 mo.*
Sharp Image & Lower Emmissions Portait Monitor
* Please Call for Details.

Peripherals



UMAX UC-630 24-BIT COLOR SCANNER $1349 or $40* (p/mo. on lease)
INCLUDES ADOBE PHOTOSHOP & CALERA WORDSCAN OCR PACKAGES

PRICE/LEASE PRICE

DOVE DOVEFAX MODEM ..... $284 / $8 mo.*
9600 BPS Fax/2400 BPS Data Modem in tiny package
DOVEFAX PLUS (also includes Voice Mail) ..... $350 / $10 mo.*

FARALLON PHONENET PC CARD ..... $209 / $6 mo.*
Card designed to add PC-Compatible to LocalTalk network
MICROTEK 600ZS 24-BIT COLOR SCANNER ..... $1435 / $42 mo.*
Full True-Color Flatbed Scanner
SUPRA FAX MODEM ..... $195 / $6 mo.*
9600 Send/Receive Fax, 2400BPS Data, inc. MicroPhone & Cable
HARRIS LABS MAC CLASSIC ACCELERATOR ..... $299 / $9 mo.*
VCP 44MB REMOVABLE CARTRIDGE DRIVE ..... $499 / $15 mo.*

QUANTUM HARD DRIVES

52MB ..... int: $229/ext: $299 **210MB** .... int: $629/ext: $699
105MB .... int: $339/ext: $429 **425MB** . int: $1299/ext: $1399

MICROTECH HARD DRIVES

Inc. 5 year warranty, Norton Utilities & 5MB Public Domain Software
NOVA 100MB ..... $675 **NOVA 170MB** $949
NOVA 1000MB $2995
* Please Call for Details.

Printers



QMS PS-815 MR 600 DPI LASER PRINTER $3895 or $116* (p/mo. on lease)
QMS PS-410 $1699 / $50 mo.*

HP COLOR DESKWRITER C
$745 / $22 mo.*
PRICE/LEASE PRICE



DESKWRITER ... $425 / $12 mo.*

PRICE/LEASE PRICE

NEWGEN PS 400P (400DPI) ..... $2095 / $62 mo.*
TEXAS INSTRUMENTS PS 17 ..... $1340 / $40 mo.*



SEIKOSHA MAC PRINTER $195
ImageWriter II-Compatible

Mac Systems



NEW MACS!

APPLE POWERBOOK 100,140 and 170 (NEW!!) ..... $CALL
APPLE MAC CLASSIC II (NEW!!) ..... $CALL
APPLE MAC QUADRA 700 and 900 (NEW!!) ..... $CALL

CALL ABOUT NEW LASERWRITER IIf & IIg & APPLE 1 SCANNER!



PRICE/LEASE PRICE

APPLE/E-MACHINES POWER SYSTEM ..... $6125 / $181 mo.*
Mac IIci 5MB RAM/105MB Hard Drive, E-Machines' T16 16" Trinitron Color Monitor w/24-Bit Color Card, Extended Keyboard

APPLE MAC IIci SYSTEM ..... $3850 / $114 mo.*
Mac IIci 5MB RAM/105MB Hard Drive, 14" Color Monitor, Ext. Keyboard

APPLE MAC IIsi SYSTEM ..... $3150 / $93 mo.*
Mac IIsi 5MB RAM/105MB Hard Drive, 14" Color Monitor, Ext.Keyboard

APPLE MAC LC COMPLETE SYSTEM ..... $2380 / $70 mo.*
Mac LC with 2MB RAM, 40MB Hard Drive, 512K VRAM, 14" Color Monitor, Standard Keyboard, and ClarisWorks Integrated Software Package

APPLE MAC IIsi 3MB RAM/40MB QUANTUM HD ..... $2299 / $68 mo.*
APPLE MAC IIsi 5MB RAM/105MB QUANTUM HD ..... $2595 / $77 mo.*
APPLE MAC IIci 5MB RAM/210MB QUANTUM HD ..... $3750 / $111 mo*

LEASING SPECIALS

MAC IIci SUPER SYSTEM ..... $292mo.*
Mac IIci 5/105 HD, E-Machines T16 16" Color Trinitron Monitor w/Accel. 24-Bit Color Board, Ext. Keyboard, QMS PS-410 Laser Printer, Microtek 600ZS Color Scanner w/Adobe PhotoShop & WordScan OCR, Adobe Illustrator, Quark XPress, Claris MacWrite II & FileMaker Pro, and Microsoft Excel

MAC IIsi TAX SYSTEM ..... $145 mo.*
Mac IIsi 5/105 HD, Apple Hi-Res 13" RGB Color Monitor, Ext. Keyboard, HP DeskWriter, Supra Fax Modem, ClarisWorks, MacinTax Personal 1040

APPLE MAC LC STARTER SYSTEM ..... $99 mo.*
Mac LC 4/40 HD, Apple High-Resolution 13" Color Trinitron Monitor, Apple Keyboard, Apple StyleWriter printer, ClarisWorks

0% Down & No Payment for 90 Days On Lease Specials * Please Call for Details.



FIRST MAC COMPATIBLE NOTEBOOKS!

OUTBOUND 2030/440 .... $2837 / $84 mo.*
20MHz, 4MB RAM/40MB HD, Floppy Drive
OUTBOUND 2030/441 .... $2959 / $87 mo.*
20MHz, Math Co-Processor, 4MB RAM/40MB HD, Floppy

ADVANCE BUSINESS CENTER

(800) 274-7747

(310) 325-1422 / fax: (310) 325-4073
23520 Pelo Ave. #3
Torrance, CA 90505

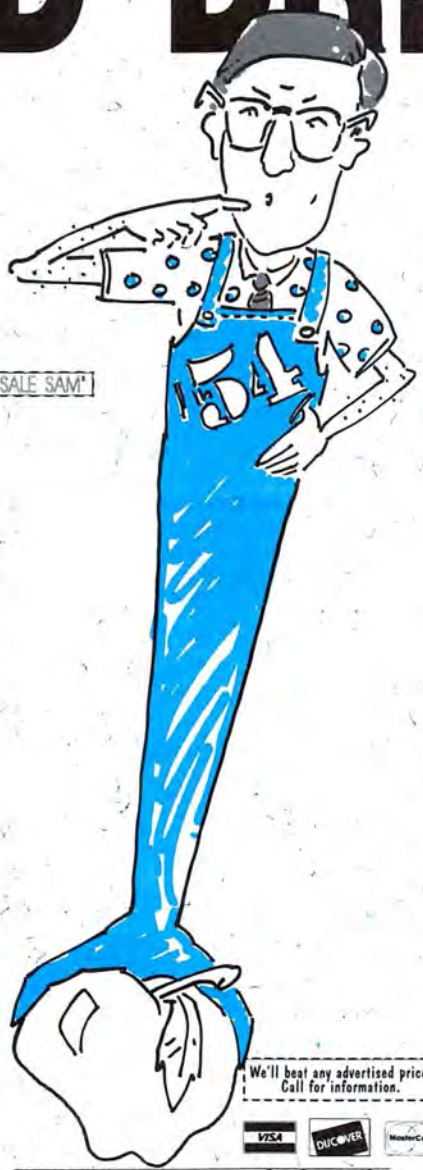
HOW TO ORDER: All $55.00 on Federal Express. Money orders and Cashiers Checks are accepted no company or personal checks please.
Shipping: Please Call for shipping methods and rates. California residents (only) add 8.25% for sales tax.
Mail Order: Please send money orders or cashiers checks for faster service. Allow 10 days for personal checks to clear. If ordering by credit card, include expiration date and billing address.
Return Policy: Call for Return Service and (310) 325-1422 to obtain a return authorization. Returned products must be in original condition and packaging and must be sent back within 30 days of purchase date.
Conditions: Prices are subject to change without notice. All items subject to availability. We reserve the right to refuse to sell to anyone.
Credit Cards: We accept Visa, Master Card, American Express and Discover. Not responsible for typographical errors. All information presented believed accurate at time of printing. Information subject to change without notice.



CIRCLE 179 ON READER SERVICE CARD.

TODAY WAS A DAY UNLIKE ANY OTHER DAY. WHOLESALE SAM JUST GOT A BIG PROMOTION AND WAS ON HIS WAY. SUDDENLY HE TOOK TWO STEPS BACK AND SIGHED. "WHUEY, WHAT A HEAVY THOUGHT!" SAM'S A MAN ABLE TO CARRY THE WEIGHT OF HIS OWN MIND. HE HAD BEEN, PONDERING THE EFFECTS OF MOUNTING BRACKETS ON MAN IN THE MOON WHO FANCIED HIMSELF AS A CORPORATE CLIMBER. PUT ON HIS BOOTS AND STARTED THE SYQUEST TO THE TOP. ONCE THERE, HE PULLED OUT A STRING (YOU MIGHT SAY HE WAS HIGH STRUNG), WRAPPED IT AROUND THE TOP AND PUT A SPIN ON IT. MARIGOLDS. AND IN HIS 9 MILLISECONDS OF DISTRACTION, SAM HAD TAKEN A DRIVE RIGHT PAST THE SEAGATE EXIT. THE ONLY WAY BACK WAS UP. SAM.

WHOLESALE HARD DRIVES



Quantum

		internal	external
52LPS	9ms	$209	$269
105LPS	9ms	$329	$379
210PRO	10ms	$615	$675

PRO series drives are 3.5" half-height.
LPS series drives are 3.5" Low Profile.

Maxtor

		internal	external
80Mb	17ms	$269	$329
125Mb	15ms	$349	$429
210Mb	15ms	$589	$649
340Mb	14ms	$939	$999

CONNER

		internal	external
200Mb	16ms	$599	$655

MICROPOLIS

		external
320Mb	14ms	$1099
660Mb	16ms	$1499
1000Mb	14ms	$2099
1354Mb	14ms	$2699

Seagate

		internal	external
60Mb	28ms		$219
80Mb	20ms	$259	$315
337Mb	11ms		$1199
676Mb	15ms		$1579
1 Gig	12.9ms		$1999

Internal drives fit the Mac II, IIx, and IIfx.

SyQuest

44Mb Removable Drive with Cartridge $419
Additional cartridges $66

88Mb Removable Drive with Cartridge $595
Additional cartridges $115

Memory

1Mb	(1x8-80ns)	$36
4Mb	(4x8-80ns)	$149

We'll beat any advertised price. Call for information.

VISA DISCOVER MasterCard

800-755-3943

TOLL-FREE IN U.S. AND CANADA



WHOLESALE 54

one of the oldest names in the storage business.

LOWEST PRICES AVAILABLE! ALL NEW EQUIPMENT!

EXTERNAL: Zero-footprint solid metal case . dual SCSI ports for daisy-chaining . external LED . SCSI cable . power cable . ONTRACK formatting/partitioning software .
INTERNAL: Mounting brackets . SCSI cable . ONTRACK formatting/partitioning software

Mailing Address: 2415 S. Roosevelt . Tempe, Arizona 85282 . Local: (602) 350-1171 . FAX (602) 350-1191 . Policy: Prices, terms & availability subject to change without notice. All products are NEW. All products carry a manufacturer's warranty. No returns on opened software. TERMS: No surcharge for MasterCard/VISA. SHIPPING: UPS or FedEX only. APO/FPO orders accepted. DOA equipment immediately replaced upon return. Product must be undamaged and in original packaging and condition. Personal checks will delay shipping 10 days. 2/92

BFC

"System seven software; super service."–*Mac*

Call **1-800-367-4222** US & Canada • **Visa/MC/AMEX** *accepted*



Workspace

Ark 7 Visual project organizer, document manager and automatic time tracker that will simplify working on your Mac. Access all your applications and projects from one place! Multiple rooms let you select from three offices, with more offices available in the future.



Bernoulli Transportable 90 Meg

IOMEGA 7O IOMEGA, long known for reliability, now offers fast, 19 millisecond acces time, and affordable removable storage with a 5-year warranty. Durable in design and built for speed.



Far Side Calendar

Amaze!nc 7 Your favorite Far Side characters make random on-screen appearances, but this light-hearted organizer does more than entertain. Features a cartoon a day, day/week/month/year at a glance, audio alarm and more.



DayMaker

Pastel Development 7O Get all your personal information together with DayMaker. Information tools include advanced schedule and to-do list management, categories, priorities, alarms, tickler reminders, address books, phone dialing, Gantt charts, import/export, and calendar output to Filofax pages



QuicKeys^2 2.1

CE Software 7O The System 7 savvy version of the leading macro product for the Macintosh. In addition to being fully 32-bit clean and offering Balloon Help, QuicKeys 2 can "drive" applications that support Apple® Events through its Apple Events Extensions.



More After Dark & After Dark/M.A.D. Bundle

Berkeley Systems 7 Over 25 incredible new displays for After Dark, including Berkeley contest winners Mowin' Man, GraphStat, and Tunnel, plus many beautiful new fish. Includes Virex-D® virus detector module from Microcom. Requires After Dark (order the bundle and save!).



ColorPage T16 Trinitron

E-Machines 7O An affordable full-page 16-inch display with 72 dpi resolution. Features Sony Trinitron technology for sharp, high quality picture. Uses the built-in video on the new Mac Quadra/040. MacUser five-mouser for three years in a row. *Ask about rebates!*



Painter/Wacom Tablet

Fractal/Wacom 7O Personal Publishing's painting product of the year! Painter delivers real natural media effects, brushes, pens, chalks, and paper grains (22 included). The Wacom tablet has the premier pressure sensitive stylus.

MacsPlace Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy O 30-60 Day Money Back Guarantee

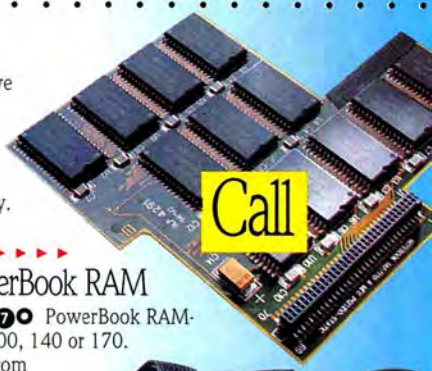
"Our people use most ever

Call **1-800-367-4222** US & Canada • **Visa/MC/AMEX** *accepted*



Access CD Allegro

Optical Access Intl. ❼ The fastest CD-ROM drive available with a 310 ms. access time. Includes SuperCache® software for lightning speed access to large amounts of information. Features headphone jack, stereo RCA type audio connectors, and deluxe desk accessory. Includes cable, sample CD, and one caddy.



PowerBook RAM

Mac's Place ❼❍ PowerBook RAM- Now available! RAM for your Powerbook 100, 140 or 170. Expand to 4, 6 or 8 megabytes Available from Mac's Place. Call for pricing today.



Sherlock Holmes Consulting Detective CD

ICOM ❼ Match your wits with the super-sleuth! Over 90 minutes of full-motion video let you take Sherlock and Watson through the streets of London to interrogate suspects and solve three murder mysteries. Unbelievable fun!



PowerBundle

T/Maker ❼❍ A collection of specially selected software for Mac PowerBooks bundled together in a high quality custom carrying case. Includes WriteNow, ClickArt for Faxes, AddressBook Plus, Business Expense Reports, and America Online. A $588.80 value!



Showplace/MacRenderMan CD-ROM

Pixar ❼ This CD-ROM is packed with plenty of programming. First, there's Showplace and MacRenderMan. Plus online documentation for both products, a gallery of images created with Pixar products, a sample of Pixar animations, and information about Pixar and its products.



Nautilus Backpac

Discovery ❼❍ Sample top-selling Mac CD ROM products! Backpac trial subscription includes six CD ROM issues of NAUTILUS with over 2 gigabytes of software including games, sound effects, music tracks, MIDI, digitized photos, Hypercard® stacks, multimedia presentations and more.



Hard Drive TuneUp Includes System 7!

Software Architects ❼ Everything--and we mean everything--you need to switch to System 7. Includes The System 7 Book by Craig Danuloff and exclusive Hard Disk TuneUp software that lets you prepare your hard disks for System 7 safely and easily. Allows you to upgrade your drive to take advantage of new System 7 features. Makes your drive run faster and safer too! Supports Apple and most third party hard drives. Includes 3-month membership in Corvallis Macintosh Users Group, incl. newsletters, get all this and CMUG gives you System 7 free. Limited time offer--order today.



DTPro CD ROM

FM Waves ❼❍ Well over 500 professional EPS images for the discriminating designer. Borders, Icons, Arrows and Design elements for newsletters, magazines, office memos, faxes and all of your creative projects. Graphic Originals - Clip Art with an Attitude -For Distinctive documents, facinating forms and notable newletters pick from one of 15 collections between $28 and $58 each set.

Mac'sPlace Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

❼ System 7 Compatible ❼ System 7 Savvy ❍ 30-60 Day Money Back Guarantee

"System seven softwar

"Not sure what works best? Call us today."–*Mac*



Ray Dream Designer and Jag

Ray Dream 7O Ray Dream Designer is 3D illustration software, designed to produce high-resolution, full-color graphics with illustration tools like Bezier curves. Supports CAD software with DFX import/export. Jag gets rid of the jagged edges in artwork created in any Mac color paint, photo-retouching, multimedia or 3D software (PICT/PICS).



Hard Disk ToolKit

FWB 7 This savvy utility is a must for all power users. It supports all SCSI hard drives, removables and opticales with formatting, partitioning, password protection, encryption, benchmaking and more.



MICRO PLANNER Manager

Micro Planning Intnl. 7 The ultimate in power, presentation graphics, and ease of use for managing projects of up to 1,500 tasks. Features PERT, GANTT, Outline, or Table formats. Plus custom screens, reports, and chart symbols.



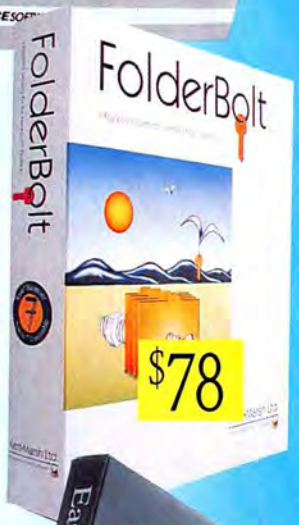
Tiles

CE Software 7O Tiles saves time and frees up mindspace so you can focus on the project at hand. It automatically organizes your computer environment, and can play macros by importing QuicKeys sequences.



PowerKey 2.0 w/QuicKeys Lite

Sophisticated Circuits 7O Turns on your Macintosh and peripherals from the keyboard. Programmable with an on/off schedule. New open architecture allows access from other applications such as MicroMat's MacEKG. Remote option lets you turn on your system with a single phone call. Works with all ADB equipped Macs. Supports Apple events



FolderBolt

Kent Marsh Ltd. 7O Here's simple, effective desktop security. FolderBolt lets you password protect any single folder or group of folders, including the system folder. Creates drop, read only or completely locked folders.



MacEKG

MicroMat 7 Now includes a new utility called REActivator, which interfaces to Sophisticated Circuts PowerKey 2.0, allowing techinicians to REALLY test all the of the Mac's facilities. Virtually a"diagnostic dashboard" for your Mac.



Easy Alarms 1.5

Essential Software 7O Like having a personal secretary! Easy Alarms organizes your schedule, maintains your "to do" list and reminds you of events. With network-wide calendar access, user scripting, AppleEvents sending and receiving, and Notify Pager (beeper) support.

"Call today. Use it tomorrow."–*Mac*

"Fax us your PO* to 206-881-3090."–*Mac*



AddressWriter

CoStar 7 Printing envelopes and postcards is no longer a bear! This dedicated printer professionally prints addresses and postal bar codes. Comes complete with MacEnvelope software and print driver utility.

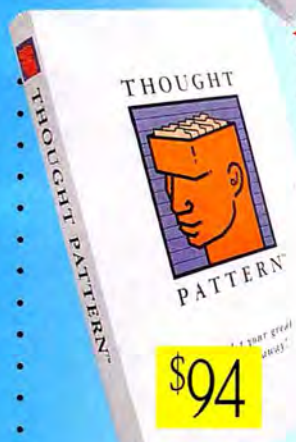
$498



Soft PC Universal 2.5 / Soft Node

Insignia 7 Add SoftNode to either Universal SoftPC or SoftAT and your Mac will run MS-DOS applications and share programs over a Novell PC Network! With SoftPC, your next IBM computer could be a Macintosh.

See Listings



ThoughtPattern

Bananafish Software 7O Get organized and work more efficiently with ThoughtPattern, the information manager that lets you integrate notes and files. Features automatic cross-referencing, powerful searches, alarms, priorities and direct launching of other applications.

$94



DiskTwin and TwinIt

Golden Triangle 7O Continuously back up your hard disk to another storage device to eliminate downtime. DiskTwin provides simultaneous backup for file servers and mail servers and requires no network downtime in the event of a primary drive failure. TwinIt offers low-cost software mirroring. *4 1/2 mice MacUser!*

See Listings



Star Trek Sounds

Sound Source Unlimited 7 Set your Mac on stun with these exciting new Star Trek sounds—just in time to celebrate the tv show's 25th anniversary. Two volumes of high-quality digital recordings: Volume One, "The Logical Collection", includes everyone's favorite dialog, sound effects, and music cues. Volume Two, "The Final Frontier," features sounds ideally suited to the hard-core Trekkie.

$29 ea



Tessarae and Mutant Beach

InLine Design 7O Stunningly beautiful Tesserae, a refreshing, exasperating full-color puzzle that's both beautiful and addicitive. 1991 MacWorld Game Hall of Fame Winner! Take your Mac to Mutant Beach! The fully-animated, full-color interactive action adventure that's state of the art.

$40/31

ORDER INFO

Mac's Policies

- Visa, Mastercard, American Express, and OPTIMA gladly accepted.
- Your credit card is never charged until your products ship.
- When a partial order is shipped, no additional freight is charged for shipments that complete the order (U.S. only).
- Most items carry the manufacturer's 30 or 60 day Money Back Guarantee (MBG). Mac's Place has a 30 day MBG on all hardware (USA only). We maintain the right to limit quantities on MBG returns. Ask for details when ordering.
- 120 day limited warranty on all products, some hardware items carry one and two year warranties. Defective software is replaced immediately with like item(s). Defective hardware items repaired or replaced at our discretion. Loan drives subject to availability (USA only).
- Most personal and company checks approved upon receipt to insure immediate shipment. For non-standard checks and checks over $1,000, allow ten working days for clearance.
- No sales tax (except WA residents add 8.2% to total, including shipping).
- All returns must have an authorization number. Please call 800-367-4222.
- All prices & promotions subject to change without notice. All items subject to availability. Not responsible for typographic errors.

Orders USA: Orders placed weekdays by 7:30 pm E.S.T., 4:30 pm P.S.T. for "in stock" items ship same day (barring system failure, etc.) for overnight delivery via Airborne Express. Our $3.00 shipping charge includes insurance at no extra charge. Rural locations may require an additional day for delivery. Areas not serviced by Airborne will be sent via U.S. Postal Service or UPS Second Day. Alaska & Hawaii orders ship UPS 2nd day air. Alaska customers outside metropolitan areas pay full shipping charges, ask for rates.

***Purchase Orders:** Government, School, and Institutional P.O.'s clear immediately. Corporate PO's subject to credit approval. Full shipping charges apply, prepaid and added.

International Orders: Call 206-883-8312. We ship throughout the free world via Airborne Express International. Contact Mac's Place for information. Mail, FAX or electronic orders gladly accepted.

Electronic Mail Orders: Compuserve (76635,660); GEnie (PLACE); America Online (MacsPlace). Mac's Place uses CE Software's QuickMail™ to check our mail each hour.

Phone: 800-367-4222, 206-883-8312, FAX 206-881-3090

© 1991 Mac's Place, Inc.

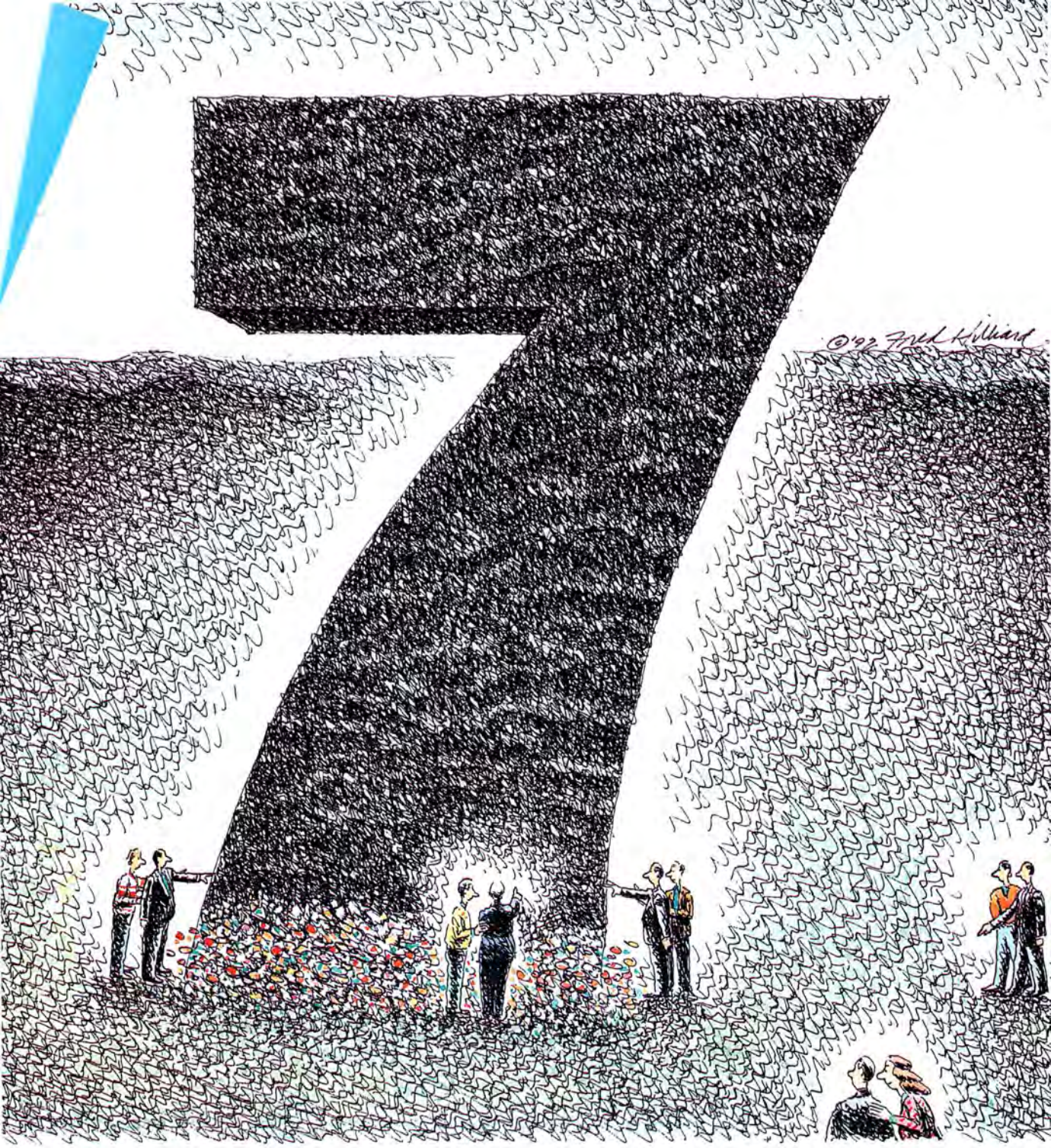
Like all aspects of Mac's Place's operation, this ad was entirely designed and assembled using Macintosh technology. No paste-up. No stripping.

Mac's Place: 8461 154th Ave NE, Redmond, WA 98052

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

Mac'sPlace

7 System 7 Compatible 7 System 7 Savvy O 30-60 Day Money Back Guarantee



Mac's Place will help you get comfortable with System 7.

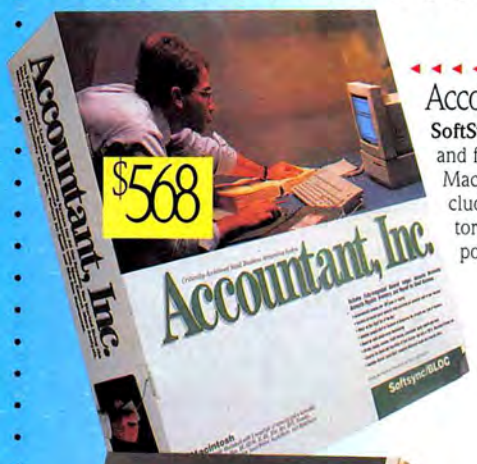
So many products. So little information. Too few facts and too much hype. With so many Macintosh products crowding today's market, how do you choose the ones that work best for you? Simple. You ask the experts at Mac's Place. You see, since we run our company entirely on Macs*, you can bet we know exactly what works...and what doesn't. Take System 7. We've made it our business to know what software is compatible, so you can upgrade without wasting any of your money or time. Our customers keep marvelling at how well we listen and answer questions. Why discover later that you've ordered the wrong product? Just one short phone call can point you the right way.

Mac's Place™

Our Hours: Monday through Friday 6AM-10PM PST and Sat/Sun 6AM-6PM PST Call **1-800-367-4222** US & Canada

*Here at Mac's Place we run our company on Macs. Completely. We understand Macintosh products better than anyone because we use them every day. And since our salespeople aren't on commission like other companies we know, we'll guide you to exactly the right products without wasting your time and money. That's what customer service is all about. Right?

Mac product. Do theirs?" –*Mac*



Accountant Inc./Multi-User

SoftSync 7O "The most complete integrated accounting and financial-management package for the Mac..."(MacUser) now supports multi-user networks. Includes invoicing, accounts receivable & payable, inventory, checking, payroll, general ledger and financial reporting.



Infini-D

Specular 7O Integrated 3D modeling, rendering, animation with an interface so easy you'll create stunning photorealistic graphics within hours. Includes 250 surface libraries, full tutorial, animation viewer. Version 1.1 supports System 7, True Type fonts.



Timeslips III 2.1

Timeslips 7O NEW! Complete time keeping and billing package. TSTimer DA captures time data. TSReport extracts that data and generates custom invoices and a wide variety of reports. Handles up to 250 users, 250 activities, 3000 clients and 128 projects per client.



In Control

Attain Corporation 7O Are projects getting out of hand? Stay in control with this indispensable application that organizes, categorizes and prioritizes your "to do" list. You get the flexibility of an outline with the power of a row-and-column format.



Flight Simulator Scenery Upgrades

Mallard 7 Tired of cruising the same old skies? Put some excitement back into your Microsoft Flight Simulator trips with these new Scenery Upgrades. Upgrade I: The Eastern Seaboard. Upgrade II: Japan, Hawaii, and New England. Upgrade III: Western Europe. Upgrade IV: The Midwest, Hawaii, and Japan.



Battle of Britain/Bomber

Deadly Games 7O New! Defend England against Germany's vaunted Luftwaffe in the greatest air battle in the history of warfare. Plus the WWII adventure of Bomber. Digitized sound, animation, and a crew that talks back. Includes headphones. MacWorld's "Best Simulation, 1990."



MouseStick (ADB)

Advanced Gravis 7O Only joystick fully compatible with MS Flight Simulator 4.0. Take advantage of Flight Sim's advanced controls for single or dual stick play. Program buttons to execute any Flight Sim. keyboard command, for the most fun in flight.



WristSavers

L.B. Innovators, Inc. O Give your wrists a rest! The contoured pad by your keyboard supports your wrist; helps reduce the risk of Carpal Tunnel syndrome. The mousepad also incorporates a contoured wrist pad. Both are neoprene with washable nylon coverings.

Call **1-800-367-4222** US & Canada • **Visa/MC/AMEX** *accepted*

uper service." –*Mac*

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy O 30-60 Day Money Back Guarantee

Mac'sPlace

"Mac's Place goes global with worldwide

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

ACCESSORIES

Advanced Gravis
- Mousestick ..... 59.
- SuperMouse ..... 84.

Apple
- Toner/Laserwriter II ..... 105.

Articulate Systems
- HeadSet Mike ..... 118.
- Voice Impact Pro ..... 218.
- Voice Navigator II ..... 548.
- Voice Record Software ..... 58.

CoStar Corporation
- LabelWriter II 1" Head ..... 185.
- Stingray Trackball ..... 89.

Everex
- Silhouette Trackball ..... 79.

Farallon
- MacRecorder 2.0 ..... 169.

Fellowes
Diskette Holder
- Teakwood(Holds 45) ..... 18.
- Teakwood (Holds 120) ..... 32.

Golden Ribbons
- Imagewriter Multi Color ..... 9.
- ImageWriter Ribbons - Black .... 4.

Kensington Microware
- 7' Long ADB Keyboard Cable ... 24.
- Apple Security Kit System ..... 33.
- SE Rad/Anti-Glare Filter ..... 52.
- Turbo Mouse Adb ..... 107.

Key Tronic
- Mac Pro Plus ..... 143.
- TrakPro ..... 218.

L B Innovators, Inc
WristSaver
- Red,Charcoal or Navy Blue ..... 12.

WristSaver Mouse Pad
- Red,Charcoal or Navy Blue ..... 12.

Mac's Place
- 7 Outlet Noise/Surge ..... 15.
- Mac's Place Speed Pad ..... 7.

Mac's Place Cable
- Macintosh Cables (Full Line) .....

Maxell
- 150Meg BU Tape CS600XD .... 22.
- 60Meg BU Tape CS600HD ..... 18.

MSC Technologies
- Little Mouse ADB ..... 74.

Sony
- Double Sided 10 Pak ..... 9.
- Double Sided-Bulk 50 Pak ..... 33.
- HD-Bulk 50 Pak ..... 60.
- High Density 10 Pak ..... 15.

Targus
- Mac/SE Bag Black ..... 54.

Extended Keyboard Bag
- Black,Navy,Gray,or Wine ..... 68.

BUSINESS

ACIUS
- 4th Dimension V2.2 ..... 478.

Advanced Software
- Docucomp ..... 87.

AEC Management Systems
- FastTrack Schedule 1.5 ..... 135.

After Hours Software
- TouchBASE 2.0 ..... 79.

Attain Corp.
- In Control ..... 94.

Caere Corporation
- OmniPage w/Spell & Draft .... 489.

CE Software
QuickMail 2.5
- 1 User Add-On ..... 62.
- Single User ..... 138.
- 5 Users ..... 249.
- 10 Users ..... 375.
- 50 Users ..... 1549.

Ceres Software
- Inspiration 3.0 ..... 158.

CheckMark Software
- Cash Ledger ..... 115.
- MultiLedger 2.0 ..... 225.
- Payroll ..... 169.

Chip Soft
- Macintax 1040 '91 "Headstart" 59.
- Macintax 1040 '91 w/Quicken 88.

Claris
- Claris Resolve ..... 268.
- Claris Works ..... 148.
- FileMaker Pro ..... 208.
- MacProject II ..... 348.
- MacWriteII & Correct Gram. . 136.

CompuServe
- CompuServe Membership Kit . 21.
- Compuserve Navigator ..... 45.

DeltaPoint
- DeltaGraph Professional ..... 192.

Farallon
- Timbuktu 4.0 ..... 129.
- Timbuktu Remote 2.0 ..... 134.

Fox Software
- FoxBASE+/Mac ..... 289.
- FoxBASE+/Mac MultiUser .... 379.

Freesoft Company
- White Knight V11 ..... 85.

Great Plains Software
- Plains & Simple ..... 255.

IBS
- Data Club 3 Users ..... 189.
- Data Club V2.0 10 User ..... 498.

Insignia Solutions
Soft PC
- 2.5 Universal ..... 239.
- 2.0 - Classic, LC, SE & Port. ... 125.
- Soft Node 109

Intuit
- Quicken 3.0 ..... 38.

MECA Software
- Managing Your Money 4.0 .... 134.

Micro Planning Intl.
- Micro Planner Manager ..... 378.

Microsoft
- Excel 3.0 ..... 298.
- Office ..... 478.
- PowerPoint ..... 242.
- Project ..... 448.
- Word 4.0 ..... 239.
- Works ..... 159.

New Era Software
- nuBASE ..... 179.

Nolo Press
- For The Record ..... 30.
- Will Maker 4.0 ..... 35.

Odesta
- Double Helix Vers.3.5 ..... 425.

ON Technology
- Instant Update-2 User ..... 278.
- Meeting Maker (5 User) ..... 289.
- Meeting Maker (10 User) ..... 549.

Paragon Concepts
- Nisus 3.06 ..... 238.

Pastel Development
- DayMaker ..... 65.

Peachtree Software
- At Once! ..... 188.

Portfolio Systems
- Dynodex 2.0 ..... 71.
- DynoPage 1.0 ..... 72.

Prescience
- Expressionist ..... 77.
- Theorist ..... 245.

ProVUE Development
- Panorama II ..... 239.

Quark
- XPress ..... 498.

Reality Technology
- Wealth Builder ..... 94.

Softsync
- Accountant Inc. ..... 339.

Software Ventures
- MicroPhone II V4.0 ..... 215.

Spider Island Software
TeleFinder
- Professional Single User ..... 52.
- Group Edition Unlimited ..... 272.

Symantec
- GreatWorks 1.0 ..... 198.
- More 3.1 ..... 264.

Symmetry
- Acta 7 ..... 74.

T/Maker
- PowerBundle ..... 158.
- Smartbundle ..... 214.
- WriteNow 2.2. W/ MacTools and GrammatikMac ..... 98.

Teleware
- M.Y.O.B. ..... 139.

Timeslips Corporation
- TimeSlips III v2.1 ..... 192.

Tops/Sitka
- Tops 3.1 Network Bundle V3.1 186.

Wolfram Research Inc.
- Mathematica Std 2.0 ..... 498.
- Mathematica Enhanced 2.0 .. 788.

WordPerfect Corp.
- WordPerfect V2.0 ..... 278.

GRAPHICS

3G Graphics
Images W/Impact
- Accents And Borders ..... 63.

Adobe
- ATM Plus Pack ..... 118.
- Illustrator 3.0 w/ATM 2.0 ..... 368.
- Photoshop 2.0 ..... 549.
- Streamline 2.0 ..... 117.
- Type Manager ..... 59.

Type Sets for Business
- Invitations & Awards ..... 95.
- Letters, Memos & Faxes ..... 95.
- Overheads & Slides ..... 95.

Aldus
- Freehand 3.0 ..... 397.
- Gallery Effects ..... 128.
- Pagemaker 4.0 ..... 497.
- Personal Press ..... Call
- Persuasion 2.0 ..... 325.
- SuperPaint 3.0 ..... 129.

Altsys
- Fontographer 3.3 ..... 262.
- Metamorphosis ..... 89.

Ares Software
- FontMonger ..... 62.

Baseline Publishing
- Color MacCheese ..... 49.

Broderbund
- Banner Mania ..... 35.
- Print Shop ..... 35.
- TypeStyler 2.0 w/ATM ..... 126.

Claris
- Claris CAD ..... 598.
- MacDraw II ..... 289.
- MacDraw Pro ..... 278.

Custom Applications
- Freedom of Press Lite ..... 55.

Delta Tao Software
- Monet ..... 238.

Deneba
- Canvas V3.0 ..... 248.
- Ultrapaint ..... 124.

Eastgate Systems
- Fontina ..... 35.

ElseWare Corp.
- DataShaper ..... 135.

FM Waves
Portfolios
- Agenda for the 90's ..... 52.
- Business Cartoons ..... 52.
- Education ..... 52.
- EPS Borders ..... 26.
- Fantasy ..... 52.
- Fashion ..... 52.

Fractal Design
- Painter ..... 258.

Frame Technology
- FrameMaker ..... 594.

Gold Disk
- Animation Works ..... 119.

MacroMind/Paracomp
- FilmMaker ..... 429.
- MacroMind Director ..... 689.
- Model Shop V2.0 ..... 0.
- Swivel 3D Professional ..... 429.
- Swivel 3D V1.2 ..... 294.

MicroFrontier
- Color It! ..... 69.

Motion Works
- ProMotion ..... Call

Pixar
- Showplace/MacRenderMan . 644.

Specular International
- Infini-D ..... 647.

SuperMac Software
- PixelPaint Pro ..... 465.

Symmetry
- Mariah ..... 89.

Timeworks
- Publish It! Easy ..... 138.

CD-ROM

Cyan
- Cosmic Osmo ..... 45.
- The Manhole ..... 37.

Discovery Systems
- Berkeley BMUG PD ROM ..... 88.
- Nautilus BackPac ..... 44.
- Nautilus Subscription ..... 20.

Everex
- EMAC Metro CD ROM Drive . 469.

FM Waves
- DTPro CD-ROM ..... 88.
- FM Waves CD-ROM I or II ..... 148.

HyperGlot Software
- Learning To Speak French ..... 59.
- Learning To Speak Spanish .... 59.

ICOM Simulations
- Sherlock Holmes Dectective ... 44.

Optical Access
- CD/Performer (500 ms) ..... 498.
- CD/Allegro (310 ms) ..... 648.

Pixar
- Showplace/MacRenderMan . 448.

Quantum Leap
- CD-7 Super Library ..... 49.
- Giga-ROM - Super Library ..... 98.
- Macademic - Education Library 73.

EDUCATIONAL

Broderbund
- Calc., Geom., or Phys. ..... 59.
- Kid Pix V1.2 ..... 37.
- Type! ..... 18.

Davidson & Associates
- Alge-Blaster Plus ..... 34.
- Dinosaur Discovery Kit ..... 27.
- Math Blaster Mystery ..... 28.
- Math Blaster Plus ..... 34.
- SAT Personal Trainer ..... 34.
- Speed Reader II ..... 28.

Great Wave Software
- Kidsmath ..... 25.
- Kidstime ..... 25.

Number Maze
- B&W ..... 25.
- Color ..... 33.
- Dec. & Frac. Color ..... 33.

HyperGlot Software
- KanjiMaster-Beg. (Japan.) ..... 98.

Pronunciation Tutor
- French,German,Spanish ..... 34.

Word Torture 4.0
- Russ.,Span., Fr., Ger., Itl. ..... 33.

Knowledge Revolution
- Interactive Physics ..... 188.

Learning Company
- Math Rabbit ..... 30.
- Reader Rabbit 3.0 ..... 36.
- Writing Center ..... Call

MECC
- Number Munchers ..... 28.
- Oregon Trail ..... 28.
- Word Munchers ..... 28.

Nordic
MacKids
- Pre-Schoolpack ..... 35.
- Turbo Math Facts ..... 25.
- Word Quest ..... 31.
- Word Search Deluxe ..... 35.

Personal Training Sys.
Beg., Int. and Adv. Modules for:
- Aldus PageMaker,Persuasion
- Claris Filemaker Pro,Hypercard
- MS Excel, Word & Works
- Quark Xpress, & System 7 . ea. 49

Simon & Schuster
- Typing Tutor IV ..... 28.

Software Toolworks
- Mavis Beacon Typing ..... 29.

ENTERTAINMENT

Accolade
- Hardball II ..... 31.
- Ishido:The Way of Stones ..... 32.
- Stratego ..... 29.
- Test Drive II The Duel ..... 36.

Baseline Publishing
- Talking Moose ..... 22.

Broderbund
- Ancient Art Of War or Sea ..... 26.
- Carmen San Diego:
- Europe, Time, USA, World. ea. 29.
- Patton Strikes Back ..... 36.
- Playmaker Football ..... 29.
- Robosport ..... 35.
- SimAnt ..... 35.
- SimCity ..... 29.
- SimCity Supreme ..... 47.
- SimEarth ..... 40.
- The Playroom V2.0 ..... 29.

Casady & Greene
- Aqua Blooper Piper ..... 29.
- Crystal Quest & Critter Ed. ..... 44.
- Glider 4.0 ..... 29.
- Mission Star. or Sky Shad. ..... 28.

Deadly Games
- Battle of Britain II ..... 31.
- Bomber (w/Headphones) ..... 31.

Delta Tao Software
- Spaceward Ho! ..... 35.
- Strategic Conquest 3.0 ..... 35.

Electronic Arts
- PGA Tour Golf ..... 35.
- Weaver Baseball ..... 29.

Inline Design
- 3 in Three ..... 31.
- Darwin's Dilemma ..... 31.
- Mutant Beach ..... 40.
- Swamp Gas ..... 31.
- Tesserae ..... 31.

Lucasfilm Games
- Indiana Jones/Last Crusade .... 28.
- Loom ..... 29.
- Pipe Dream ..... 17.

Mallard Software
Flight Simulator Add-Ons
- Scenery Upgrade I-IV ..... ea.30.

Micro League Sports
- Micro League Baseball II ..... 35.

MicroProse
- Railroad Tycoon ..... 32.

Microsoft
- Flight Simulator 4.0 ..... 39.

Mac'sPlace

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

"I'll ship it to you overnigh

System 7 Compatible • System 7 Savvy • 30-60 Day Money Back Guarantee

ervice and delivery." –*Mac*

Mindscape
Crossword Magic ..... 29.
Sierra On-Line
7 Space Quest IV ..... 34.
Silicon Beach SoftwareO
Dark Castle or Beyond ..... 32.
Sir-Tech Software
Wizardry or II ..... 29.
7 Wizardry:Bane/Cosmic Forge .. 35.
Software HeavenO
7 OIDS ..... 25.
Software Toolworks
7 Chessmaster 2100 ..... 29.
7 Cribbage King/Gin King ..... 24.
7 Hunt For Red October ..... 20.
7 Life And Death ..... 29.
Spectrum HolobyteO.
Falcon 2.2 ..... 33.
7 Vette ..... 32.
7 Tetris,Welltris or WordTris ..... 23.
Strategic Simulations, Inc.
AD&D: Silverblades ..... 38.
7 AD&D:Curse of Azure Bonds ... 38.
AD&D:Pool Of Radiance ..... 32.
Strategic Studies Group
7 American Civil War Vol 1 ..... 30.
7 Gold of the Americas ..... 30.
7 Halls Of Montezuma ..... 28.
7 Panzer Battles ..... 28.
Reach for the Stars ..... 30.
7 Rommel Battles for N. Africa ... 28.
Warlords 38
Three Sixty Pacific Inc.
7 Armor Alley ..... 33.
7 Harpoon ..... 39.
7 Harpoon BattleSet #2 or #3 ..... 20.
7 Harpoon Scenario Editor ..... 28.
7 Sands Of Fire ..... 32.
Velocity
7 Spectre ..... 38.

HARDWARE

Applied EngineeringO
7 AEHD Superdrive ..... 219.
7 Cache-In 50 IIci w/68882 .... 1898.
7 FastMath LC(68882 16MHz) .. 138.
7 MacRam Classic Memory Card 44.
7 QuadraLink w/AE Shadow .... 199.
7 QuickSilver IIsi ..... 239.
DataLink Express II W/V.42 & MNP 5
7 Send & Receive Fax ..... 218.
TransWarp Accelerators
SE 25Mhz w/FPU ..... 788.
SE 40Mhz w/FPU ..... 1498.
LC 25Mhz w/FPU 828
LC 40Mhz w/FPU 1378
AsantéO
7 10T Hub ..... 698.
7 MacCon3 IISI ..... 269.
7 MacCon3 NB ..... 269.
7 MacCon3 SE ..... 269.
Caere Corporation
7 Typist + Graphics ..... 479.
Dayna Communications
DaynaFILE II
7 1.2MB/1.44MB Dual Drive .... 688.
DaynaPORT Ethernet Cards
7 E/30-T ..... 218.
7 E/LC-T ..... 208.
7 E/LC-TFP ..... 328.
7 E/si-T ..... 208.
7 E/si-TFP ..... 328.
7 E/ZT (External) ..... 288.
DayStar DigitalO
7 DualPort IIsi ..... 98.
7 Fast Cache IIci 64K ..... 268.
PowerCache(SE/30, all IIs, and LC)
7 33MHz ..... 738.
7 40MHz ..... 898.
7 50MHz ..... 1398.
DoveO
7 DoveFax Desktop Plus V2.0 ... 358.
7 DoveFax Desktop V2.0 ..... 289.
E-MachinesO
7 QuickView Sound ..... 275.
7 QuickView Studio 1.1 ..... 1695.
7 QuickView Studio Software .. 428.
7 QuickView Video ..... 398.
Color Displays
7 ColorPage E16 ..... 1045.
7 ColorPage T16 ..... 1758.
7 T19 ..... 2998.
7 TX ..... 1758.
Color Interface Cards
7 DoubleColor ..... 345.
7 DoubleColor LC ..... 425.
7 Futura EX ..... 568.
7 Futura MX ..... 1395.
7 Futura SX ..... 1058.
7 Futura SX/8 ..... 698.
7 TX SE30/8 and T19 SE30/8 .. 898.
7 TX/8 and T19/8 ..... 898.
7 TXsi and T19si ..... 898.
Everex
7 EMAC 150MB Tape Backup .. 678.
FarallonO
PhoneNET
7 Connector (10Pk) ..... 195.
7 Connectors ..... 29.
7 Localtalk Card ..... 208.
7 Star Connector(10Pk) ..... 119.
7 StarController-EN ..... 1378.
Global VillageO
TelePort
7 9600 SendFax ..... 179.
7 A300 (2400 bps) ..... 128.
Golden TriangleO
7 DiskTwin (Nubus or PDS) ..... 748.
Harris LabsO
7 Performer 16 mHz Accel. ..... 248.
7 Performer Math Co-Proc 68881 78.
Logicode
Quicktel Fax Modems
9624 Send/Receive ..... 148.
9624 V.42bis Send/Receive .. 198.
Quicktel Modems
2400 V.42bis ..... 158.
9600 V.32/V.42bis ..... 498.
MicronO
7 XCEED Color 30 ..... 279.
7 XCEED MacroColor II ..... 469.
MicrotekO
7 ScanMaker 600GS ..... 1098.
7 ScanMaker 1850S ..... 2298.
7 ScanMaker 600ZS ..... 1445.
7 TrueLaser Printer ..... 1398.
NuvotechO
Turbo Net - Din-8 ..... 19.
RasterOpsO
Color Monitors
7 19" ColorCad Trinitron ..... 3288.
7 19" Hitachi ..... 2089.
7 19" Trinitron Monitor ..... 2789.
7 21" Hitachi Monitor ..... 3398.
Color Video Boards 13" only
7 264 SE/30 (24 Bit) ..... 578.
7 RasterOps 24S ..... 398.
7 RasterOps 24SI ..... 598.
Color Video Boards 13",19",21"
7 24XLi ..... 2598.
7 8LC ..... 598.
7 8XL ..... 668.
7 8XLi ..... 1298.
7 ColorCad 228 ..... 1298.
Monochrome/Grayscale Monitors
7 19" Mono/Gray-Scale ..... 998.
7 21" Mono/Gray-Scale ..... 1358.
Video & Multi Media
7 24XLTV ..... 2989.
7 Expresso Pers.Slide Scan. ..... 668.
7 ImagePak Still Compression .. 328.
7 ProVideo 32 ..... 1298.
7 ProVideo PAL ..... 1658.
7 RasterOps 24STV ..... 1188.
7 TV Tuner ..... 328.
7 Video ColorBoard 364 ..... 669.
7 Video Exp (NTSC or PAL) ..... 469.
Video Boards-Grayscale
7 ClearVue/GSLC ..... 598.
7 ClearVue/GSXL ..... 668.
Video Boards-Monochrome
7 ClearVue/Classic, LC or XL ..... ea. 328.
ShivaO
7 Ethergate ..... 1289.
7 FastPath 5 ..... 1895.
7 NetBridge ..... 399.
SIMMO
Single Inline Memory Modules
7 SIMM 1 Meg 80ns ..... 39.
7 SIMM 2 Meg 80ns ..... 99.
7 SIMM 4 Meg 80ns ..... 159.
7 SIMM FX 4 Meg 80ns ..... 168.
7 SIMM FX/NTX 1 Meg 80ns ..... 45.
Sigma DesignsO
7 DoubleUp w/ Disk Doubler .... 184.
Sophisticated CircuitsO
7 PowerKey Remote ..... 32.
7 PowerKey w/Quickeys Lite .... Call
Supra Corp.O
Supra Modem
7 2400 ..... 109.
7 MacPac 2400 ..... 169.
7 Plus 2400 (MNP5,V.42 BIS) ... 178.
7 Supra FaxModem Plus MacPac 198.
ThunderwareO
7 Lightning Scan 400 ..... 379.
7 LightningScan Pro 256 ..... 518.
WacomO
12X12 Digitizers Cordless Stylus
7 Electro Static/Firm or Soft Stylus 898.
7 Standard/Firm or Soft Stylus . 828.
6 X 9 Digitizers Cordless Stylus
7 Standard/Firm or Soft Ius ..... 558.

HARD DRIVES

CRU
Case Opener/Torx Kit ..... 8.
Internal Mounting Kits
Mounting Bracket (IIcx/IIci) ..... 19.
7 Mounting Bracket (SE/II) ..... 19.
CRU Hard Drive Case
7 Half Height Case Platinum .... 109.
DataPlaceO
External Hard Drives
7 DP 52 Mb Quantum ..... 289.
7 DP 105 Mb Quantum ..... 398.
7 DP 170 Mb Quantum ..... 698.
7 DP 210 Mb Quantum ..... 689.
7 DP 425 Mb Quantum ..... 1298.
7 DP 676 Mb WrenRun II ..... 1998.
Removable Syquest Hard Drives
7 DP 44 Mb w/cartridge ..... 458.
7 DP 88 Mb w/cartridge ..... 598.
IomegaO
Bernoulli
7 Transportable 90Mb ..... 788.
7 Dual Drive 90Mb ..... 1688.
7 Kit w/MacTools Deluxe ..... 39.
7 Kit w/Retrospect ..... 98.
7 Single 90Mb Cartridge ..... 139.
7 Tri-Pack 90Mb ..... 438.
Quantum 3.5" DriveO
Half Height Drive
7 210-MEG 15ms ..... 638.
7 425-MEG 15ms ..... 1279.
Low Profile
7 ProDrive LPS 52MB ..... 238.
7 ProDrive LPS 105B ..... 369.
Seagate TechnologyO
Full Height Drive
7 WrenRunner II 676 Meg ..... 2088.
Syquest
7 44 MEG Cartridges ..... 66.
7 88 MEG Cartridges ..... 118.

MUSIC

Ars NovaO
7 Practica Musica 2.3 ..... 66.
Electronic Arts
7 Deluxe Music Con Set 2.5 ..... 82.
Opcode SystemsO
7 Book Of MIDI ..... 29.
7 EZ Music Starter Kit ..... 155.
7 EZVision ..... 98.
7 Galaxy Universal Librarian .... 198.
7 MIDI Translator ..... 42.
7 Studio 3 Midi/Smpte Interface 288.
7 Vision ..... 378.
Passport DesignsO
7 Audio Trax ..... 197.
7 MIDI Interface ..... 74.
7 Note Writer II ..... 348.
PG Music
7 Band In A Box ..... 56.

PROGRAMMING

Bowers DevelopmentO
7 AppMaker ..... 214.
Claris
7 Hypercard V2.1 ..... 148.
MicrosoftO
7 QuickBASIC 1.0 ..... 64.
SymantecO
7 Just Enough Pascal ..... 49.
7 Think C 5.0 ..... 209.
7 THINK Pascal 4.0 ..... 159.
7 Think Reference ..... 59.
TGS SystemsO
7 Prograph V2.5 ..... 298.
Zedcor IncO
7 ZBasic 5.0 ..... 95.

BOOKS

Addison Wesley
C++ Prog w/MacApp & Disk ... 27.
Guide to Mac Family Hardware 21.
Mac C Programming Vol 1 or 2 19.
Mac C Programming Vol 2 ..... 19.
Mac Pascal Prog. Vol 1 ..... 19.
Macintosh Program Secrets .... 18.
7 Progrs. Online Companion ..... 32.
Inside Macintosh Series
Vol.1 ..... 18.
Vol.2, 4 or 5 ..... 19.
Vol.3 ..... 17.
Vol.6 ..... 38.
X-REF for Vol. 1-6 ..... 9.
Inside Out Series
Complete Book of HyperTalk 2 19.
Elements of C++ Mac Prog ..... 19.
7 Learn C w/Think C Lite ..... 28.
Mac Prog Guide MPW Vol 1 ... 19.
ResEdit Ref. (w/ResEdit 2.1) ... 23.
System 7 Revealed ..... 18.
Bantam Books
Hypercard Handbook ..... 21.
Microsoft Press
MS Excel 3 Companion ..... 20.
Peachpit Press
Canvas 3.0: The Book ..... 17.
DataBase 101 W/ Demo Disk . 14.
Little Mac Book, 2nd ed. ..... 12.
Little Quickeys Book ..... 12.
Little System 7 Book ..... 10.
Macintosh Font Book ..... 18.
QuarkXpress Book ..... 20.
Real World Freehand ..... 22.
Ventana Press
7 The System 7 Book ..... 19.

UTILITIES

Advanced SoftwareO
7 Intouch V1.1 ..... 39.
7 QuickTools ..... 38.
Aladdin SystemsO
7 StuffIt Deluxe 2.0 ..... 59.
Alsoft
7 Diskexpress II ..... 53.
Alysis Software Corp.O
7 SuperDisk! 2.0 ..... 56.
Baseline PublishingO
7 INIT Manager ..... 33.
7 Thunder 7 ..... 55.
Berkeley Systems
7 After Dark & M.A.D. Bundle .... 41.
7 After Dark 2.0 ..... 26.
7 More After Dark (M.A.D.) ..... 26.
Bright Star TechnologyO
7 At Your Service ..... 29.
7 New Actor Add-Ons ..... ea 10.
Casady & GreeneO
7 Crash Barrier ..... 48.
7 QuickDex II ..... 22.
CE SoftwareO
7 Alarming Events ..... 83.
7 Calendarmaker 3.0 ..... 31.
7 Disktop 4.0 + Gofer & Util ..... 62.
7 QuicKeys 2.1 ..... 89.
ConnectixO
Compact Virtual - 68000s ..... 72.
7 HandOff II 2.2 ..... 55.
7 Maxima 2.0 ..... 45.
7 Virtual 3.0 ..... 69.
Dantz DevelopmentO
7 DiskFit Pro ..... 78.
7 Retrospect ..... 145.
7 Retrospect w/Remote 10 pk .. 264.
Dayna Communications
7 Dos Mounter V2.0 ..... 53.
Dubl-Click Software
7 ClickChange ..... 56.
Fifth GenerationO
7 Fast Back II ..... 118.
7 Suitcase II V2.0 ..... 49.
SuperLaserSpool 2.0 ..... 92.
Superspool 5.0 ..... 57.
Golden Triangle
7 DiskMaker ..... 55.
7 TwinIt (Software) ..... 172.
ICOM Simulations
7 On Cue II ..... Call
Insight DevelopmentO
7 MacPrint 1.2 ..... 84.
Kent Marsh LTDO
7 NightWatch II ..... Call
7 GuardCard ..... Call
MicrocomO
7 Virex ..... 57.
MicroMat
7 MacEKG ..... 63.
MicroseedsO
7 HAM ..... 49.
7 Redux ..... 49.
Now SoftwareO
7 Now Utilities V 3.0 ..... 83.
ON TechnologyO
7 On Location 2.0 ..... 74.
Sabastian Software
Image Grabber 2.0 ..... 34.
SalientO
7 Disk Doubler ..... 38.
SoftWriters
7 7-Updater (6 User) ..... 68.
7 VersionTerritory 2.0 (10 user) 138.
7 VersionTerritory 2.0 (Unlmtd)1388.
Sound Source Unlimited
SoundWare
7 Star Trek Sounds Vol. 1 or 2 ... 29.
SymantecO
7 Norton Utilities V1.1 ..... 79.
7 S.A.M. III ..... 59.
7 S.U.M. II ..... 96.
Thought I Could
7 Wallpaper ..... 38.
Working Software, Inc.O
7 Last Resort ..... 38.

OVERNIGHT $3 SHIPPING

Call **1-800-367-4222** US & Canada • **Visa/MC/AMEX** *accepted*

OVERNIGHT $3 SHIPPING

r just $3." –*Mac*

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy O 30-60 Day Money Back Guarantee

MacsPlace

12" 13" 14" 15" 16" 17" 18" 19"

16" & 19" E-Machines Priced Right

Get Ready!



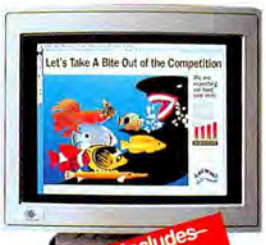
16

E-Machines E16
NEW 16" ColorPage Display
Compatible with LC, IIsi, IIci & Quadra built-in video
$1,095



16

E-Machines TX
16" Two-Page Sony Trinitron Color Display
$1,750



Price Includes FREE 8-Bit Color Card

19

E-Machines T19
19" Two-Page Sony Trinitron Color Display
$2,795



E-MACHINES

16

ColorPage T16
16" Sony Trinitron Display.
Always perfect for LC, IIsi, IIci & IIfx.
Now delivers full-page 24-bit color with Mac Quadra built-in video!

With Rebate & Quadra Purchase Just
$1,595

Now the Award-winning T16 is "Quadra-Ready"

Pick a Card. Express Direct is E-Machines' largest retailer worldwide (over 100 Display Systems in stock!) So whether it's 8-bit or 24-bit, 16" or 19", let our consultants advise you on the right Color Card and the right Display perfect for *your* application needs. (Depending upon your particular Mac, some of these displays may require the purchase of a video card. Call for details.)

Pick a Mac. Now get **Norton Utilities for the Macintosh FREE** when you purchase a Mac cpu with a display! Norton Utilities version 1.1, now supporting System 7.0, has even more powerful features than ever. Note: market fluctuations & magazine deadlines don't always allow us to advertise our latest price. So call us before you buy from just anybody!

Classic, 2/40...$1,049
Mac IIsi, 3/40.....Call
Mac IIci, 5/0.....$2,799
while quantities last
Quadra 700, 4/0...$4,399
Quadra 900, 4/0...$5,595

The Express Advantage. Mac Systems in stock - many ready for same day shipping E Unlimited Toll-Free Telephone Support E Experienced, knowledgeable Macintosh Sales Professionals E Exclusive ExpressCare™ Service Agreement E Leasing Terms available on most products.

Express Hours (Central):
M-F 8AM-7PM, Fax 24hrs,7days/wk

CIRCLE 128 ON READER SERVICE CARD.

"The Mac Systems Company"

EXPRESS DIRECT

1-800-535-3252

1801 West Larchmont Ave. • Chicago, Illinois 60613 USA • 312.549.0030 • FAX 312.549.6447

International Orders Shipped Daily • FAX 312.549.644

Credit card orders are not charged until product is shipped. Prices subject to change without notice. All warranties on Macintosh or Apple brand products sold by Express Direct will be honored by Express Direct or its authorized agents only. All other manufacturers' warranties still apply.

FREE SHIPPING
Most orders shipped via 2-day air

GREAT PRICES
On the **latest** versions of your favorite products

Microtek TrueLaser $1480
Syquest 88MB rem dr $699

80ns RAM @ $40 per MB
Quantam 105MB HD $378
Insignia SoftAT 2.5 $298
Microtek 600-GS $1,195
DayStar Digital 50MHz
PowerCache IIci $1626
NewLife Upgrades for any Mac SE, Classic or smaller
Asanté 10BaseT Hub with 14 ports $674
Okidata Okilaser 800 $1124

- Full line of Opcode products for MIDI musicians of all needs
- Asanté MacCon+IIET Ethernet Card $210
- Microsoft Works 2.0 $140
- Seiko CM-1445 Color 14" Trinitron monitor $664
- Micron Xceed IIci 128k Cache Card $243
- NEC CDR-36 Portable CD-ROM Drive $498

GREAT PRODUCTS
Choose from more than 4,000

Memory	•DTP	•Keyboards
Fax/Modems	•Graphics	•Expansion Cards
Printers	•Networking	•Surge Suppressors
Scanners	•Word Processing	•Cables & Disks
OCR Devices	•Databases	*and*
Music & MIDI	•Business Presentation	•Kitchen Sinks

GREAT SERVICE
30-day money back guarantee on most defective items
Free shipping—1 to 3 days delivery on most items

MacEssentials

VISA and MASTERCARD accepted

1-800-658-3899

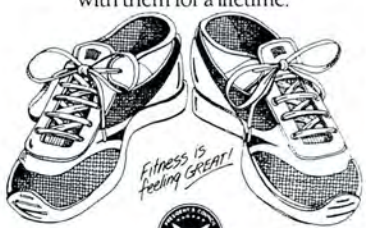
Just the Fax: 1-605-886-2739

CIRCLE 39 ON READER SERVICE CARD.



Let's Be Sure Our Children Grow Up Smart And Fit.

There's another part of our children's education that's just as important to their future as the "3 R's" — physical education. The healthy hearts they develop now will go a long way toward helping them grow into healthy adults. And best of all, the good fitness habits they learn can stay with them for a lifetime.



The President's Council on Physical Fitness and Sports

HEWLETT PACKARD

HP #92295A
LaserJet II, IID, III
Laserwriter II NT
Laserwriter II NTX
Laserwriter II SC
73.95 each



HP #92275A
LaserJet IIP, IIIP
Laserwriter NT
Laserwriter SC
61.95 each



3.5" Double Side Disks

3M	7.19
Sony	7.19
Maxell	7.19
Verbatim	7.19
KAO	6.69
BASF	6.59
TDK	6.49
Nashua	6.29
Precision	4.79
BULK *(Sony No-Logo)*	.49 ea.

3.5" High Density Disks

3M	11.99
Sony	11.99
Maxell	11.99
Verbatim	11.99
KAO	11.59
BASF	10.99
Nashua	10.79
TDK	10.19
Precision	9.29
BULK *(Sony No-Logo)*	.89 ea.

"Call" for Data Cartridges, 4mm & 8mm Backup Tapes, Ribbons, Fax Paper, Laser Toners, Optical Disks, & 3M Office Products

DISKETTE CONNECTION

WAREHOUSE LOCATIONS NATIONWIDE
PO BOX 1674, BETHANY, OK. 73008

EAST
1-800-451-1849

SOUTHEAST
1-800-940-4600

MIDWEST
1-800-654-4058

WEST - HAWAII & ALASKA
1-800-621-6221

Minimum Order $20.00 NO SURCHARGE on VISA / MC
COD orders add $3.75 Shipping charges determined by items and delivery method required by customer.
(Prices are subject to change without notice)

FAX Order Line (405) 495-4598

CIRCLE 122 ON READER SERVICE CARD.

Take a 'Q' From Us

QMS

QMS-PS 410 *300 dpi Laser Printer (4-ppm) with Serial, Parallel or AppleTalk auto switching*

$1,695



QMS

QMS 815MR *300 dpi & 600 dpi Laser Printer (8-ppm) with Serial, Parallel or AppleTalk auto switching*

$4,195



WE CARRY THE COMPLETE LINE OF QMS PRINTERS.

Let us quote you on the **QMS-PS 825MR** or the **QMS ColorScript 100** of your choice. Ask about our Leasing Terms & warranties.

EXPRESS DIRECT

1801 West Larchmont Ave. • Chicago, Illinois 60613 USA
312.549.0030 • FAX 312.549.6447

1-800-535-3252

International Orders Shipped Daily
FAX 312.549.6447

Please note that in the event of unforseeable circumstances, prices are subject to change without notice.

CIRCLE 129 ON READER SERVICE CARD.



Quark XPress 3.1 **$511**

Ask about our wide selection of Quark XTensions.

QMS PS-410 **$1629**

300 DPI Postscript • Auto PC–Mac Switching
45 Resident Fonts • 2MB RAM • With Toner Cart
QMS 2MB Upgrade **$210**
QMS 4MB Upgrade **$360**

DGR 128MB Removable 3.5" Erasable Optical **$1499**

Erasable Optical Drive with 35ms access.
3.5" 128MB Cartridges only **$99**

PLI Infinity 40 / Infinity 88
$575 / $849



Abaton Interfax 24/96
$259



1,2, & 4 MB SIMMs
$35, $89 & $179



HP DeskWriter **$389**
HP DeskWriterC **$722**



NEW! Claris Resolve **$249**
Claris FileMaker Pro **$181**



Seiko CM-1445
$539



LC Math 68882 FPU
or 512k VRAM **$79**



SyQuest 45/88 Cartridges
$63 / $119



TokaMac 040
Accelerators
LC, SE/30, IIsi, IIci, IIfx



Umax 630 24-bit Scanner
with PhotoShop **$1289**



SYSTEMS

Call for Latest Apple Pricing!

SYSTEM LEASING NOW AVAILABLE

Macintosh Classic 1/0	825
Macintosh LC 2/40	1550
Macintosh IIsi 3/40	1999
Macintosh IIci	2725
Macintosh IIfx	3745
Macintosh Classic Model II 2/40	1541
Macintosh Classic Model II 4/80	1948
Macintosh Quadra 700	4237
Macintosh Quadra 900	4757
Macintosh PowerBook 100 2/20	1849
PowerBook 100 2/20 w/ Floppy	2029
Macintosh PowerBook 140 2/40	2597
Macintosh PowerBook 140 4/40	2841
Macintosh PowerBook 170	3734

Call forPowerBook RAM & Quadra VRAM

NETWORKING

Asante 10baseT Hub	610
Asante 16k Cards/ All CPU's	239
Asante 64k Cards/ All CPU's	255
Cayman Gatorbox/GatorPrint	1849/359
DaynaPort /DaynaPort FPU	245/349
Dayna EtherPrint /EtherPrint Plus	325/589
Farallon Star Controller	799
Farallon Star Controller EN	1499
PhoneNet 10 Pack	188

DoveFax Plus

24/96 Fax modem with built-in Voice Mail/Answering Machine Capabilities

$310

DoveFax 24/96 **$227**



QuickMail 10 User	285
Shiva Ethergate / FastPath 4	1262/ 1850
Shiva Netbridge or Telebridge	399
Timbuktu/Remote Access Pak	732

HARDWARE

SIMMs: all types/best prices	Call
Apple 13" HighRes RGB	639
Apple LaserWriter IIf 20MHz 030	2764
Apple LaserWriter IIg 25MHz 030	3533
Apple StyleWriter	425
Apple StyleWriter Refill -Twin Pack	19
Apple Personal LaserWriter LS	915
Apple Personal LaserWriter NT	1750
Abaton 300 Scanner w/PhotoShop	1049
ATTO IIci Cache Card	149
Caere Typist Plus Graphics	425
Chinon CD-ROM	525
Courier 9600 V-32 MNP-5	695
Datadesk Keyboard 101E	115
DigiVideo Color TV from AAps	199
E-Machines E16 - NEW	Call
E-Machines T16	Call
E-Machines T19	Call
EMAC Silhouette	75
GCC PLP II	849
GCC PLP IIs	1246
GCC BLP Elite	1415
GCC BLP II	1659
GCC BLP IIs	2409
Global Village Teleport with FAX	175
Hayes Smart Modem 2400	325
Hewlett Packard Lasers	Call

Microtek TrueLaser

RISC based 6ppm 3MB RAM.
10X faster than the TI microLaser!
Auto Mac-PC Switching.

$1248

On Site Warranty Included!



Hewlett Packard DeskWriter	399
Howtek Scanners	Call
Ikegami CT-20" Trinitron	1849
Kensington Turbo Mouse	101
Keytronic MacPro Plus Keyboard	115
Logitech ScanMan 32	299
Mac Recorder Digitizer Only	89
Mass Micro Quick Image 24	579
Microtek 600GS with PhotoShop LE	1118
Microtek 1404 -14" Color Monitor	499
Motorola PMMU 68852	109
NEC Monitors & CD ROMs	Call
NEC Silentwriter II Model 90	1589
Practical Peripherals 2400b	164
Practical Peripherals MacPak	225
QMS ColorScript-All Models	Call
QMS PS-410	1629
QMS PS 410 2/4 MB Upgrade	210/360
Roland CAMM1 & Signpost sofware	Call
Seiko CM-1445	539
Seiko Smart Label Printer	176
Sharp Scanners All Models	Call
Sigma Double-Up Card	189



BOTTOM LINE INTERNATIONAL DEPARTMENT

Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. Contact our full-time international department via fax at **(512) 476-6399**. Fast and reliable customer service is standard. We ship DHL, UPS International, or Federal Express. We stock 220v versions of most hardware and 220v converters are available. Dealer inquiries are welcome. Language interpreters are available. Internationale Händlerkonditionen.

INTERNATIONAL SALES FAX (512) 476-6399

Bottom Line Distribution 1800 Rio Grande, Austin, Texas 78701



Turbo microLaser PS/35 $1949

9 ppm engine • Postscript Level 2 RISC processor
Appletalk interface included on all models
16ppm Turbo microLaser PS/35 XL $3129

FASTER ENGINE! 9 Pages Per Minute

TI microLaser Plus PS/17 $1235
TI microLaser Plus PS/35 $1535

Appletalk interface & 1.5MB RAM included on all models
1MB TI Upgrade $59 • Replacement Toner $55

Microtek 600ZS $1295

600 DPI 24-bit Scanner with Photoshop 2.0
& ScanMatch Calibration Software

$200 REBATE on 1850S SlideScanner

Microtek 1850S Slide Scanner $1959

1850 DPI Color Slide Scanner with Photoshop 2.0

RasterOps™



NEW! RasterOps CorrectPrint	$7250
RasterOps 364...24-bit Video Frame Grabber	$724
RasterOps 24STV	$1152
RasterOps 24si	$658
RasterOps 24s	$460
RasterOps Video Expander (NTSC or PAL)	$486
RasterOps 24XLTV	$2639
RasterOps 8XLi 8-bit/ 24XLi 24-bit card	$989/$2309
RasterOps 19" Trinitron/ 19" Hitachi	$2620/$1850
RasterOps ClearVue Grayscale 19" System	$1318
RasterOps 8LC System (19" 8-bit color w/ card)	$2856

radius™



Radius Rocket 040 Accelerator	$1749
Radius Pivot / Color Pivot	$710/$1239
Radius Color Pivot Interface II, IIsi, LC, SE/30	$549
Radius Two Page Display 19"	$975
Radius Two Page Display 21"	$1249
Radius Two Page Interface II, IIsi, SE, SE/30	$415
Radius Color Display 19"	$2999
Radius Color Display 21"	$3149
Radius 24-bit Interface 72 DPI	$2515
Radius QuickColor Graphics Engine	$275
Radius Precision Color Calibrator	$485

DAYSTAR DIGITAL



NEW! PowerCache for the LC, SE/30, II, IIsi, IIcx, & IIci

ONE CARD FITS ALL! 30 Day Money Back Guarantee!

33 MHz PowerCache	$624
40 MHz PowerCache	$817
40 MHz PowerCache with 68882 Coprocessor	$1006
50 MHz PowerCache	$1282
50 MHz PowerCache with 68882 Coprocessor	$1539
NEW! FastCache IIsi	$259
FastCache IIci	$249

Shiva Net Modem v.32	1230
TI microLaser PS XL 17	2449
TI microLaser PS XL 35	2799
TI Envelope Feeder	244
TI microLaser 1MB Kit	594
Wacom Tablet- All Models	Call
ZOOM 2400 Baud Modem/Fax	99
ZOOM 24/96 Send/Recive Fax	170

DRIVES & TAPES

Bernoulli 90MB w/ Interface	814
Bernoulli 90MB TriPak	404
MicroNet 88mb Removable	949
Syquest 88MB Cartridge	119
PLI Super Floppy	399
PLI Quick SCSI with Cable	310
Quantum 52MB LPS	239
Quantum 105MB LPS	349
Quantum ProDrive 170MB	629
Quantum ProDrive 210MB	659
Internal/External Drive Kit	29/99
Syquest 88MB Mechanism	699
Toshiba CD-ROM XM 3201A	685

SOFTWARE

4th Dimension 2.2	469
Adobe Illustrator 3.0 w/ATM	335
Adobe PhotoShop 2.0	515
Adobe StreamLine 2.0	75
Adobe Type Manager 2.0.2	54
Adobe Type Reunion	36
After Dark 2.0	22
Aldus Design Team	799
Aldus Freehand 3.0	369

JetInc. InkJet Refill

A clean, inexpensive solution for recharging HP DeskWriter & Apple StyleWriter cartridges. Permanent ink.

Twin Pak $15.99

COLORS AVAILABLE



Aldus PageMaker 4.01	475
Aldus Persuasion 2.0	299
At Once!	273
Canvas 3.0	239
Carbon Copy 2 Pack	153
DiskFit 2.0	57
Disk Doubler 3.7	39
Double Helix 3.0	325
Farallon Media Tracks	171
Fastback 2.1	97
FileMaker Pro	181
FilmMaker	399
Fontagrapher 3.3	225
FontMonger	65
Foxbase +Mac	265
FrameMaker	642
Freedom of the Press 3.0	229
Lotus 1-2-3 for Macintosh	299
MacDraw Pro	249
MacProject II	345
Macromind Director 3.0	618
Macromind MediaMaker	449
MacWrite Pro	NEW

Managing Your Money 4.0	124
MasterTracks Pro	183
MicroPhone II 4.0	195
MS Excel 3.0	299
MS Word 4.0	225
MS Works	179
MiniCAD 3.0	469
More 3.0	249
Norton Utilities Mac 1.1	74
OmniPage 3.0	459
Passport Encore	335

Applied Engineering

AE HD SuperDrive 1.44	$209
Cache-in IIci Cache	$195
QuickSilver IIsi Cache	$205
QuickSilver w68882	$259
TransWarp LC/33MHz	$699
TransWarp LC with FPU	$879



Passport Midi Interface	63
PixelPaint Professional 2.0	479
Quark XPress 3.1	511
Quick Keys II V.2.1	87
Quicken 3.0	38
Retrospect	131
Soft PC 2.5 / Soft AT	178/279
Soft PC 2.5 Classic/LC	117
Stratavision 3D 2.0	579
Studio/32	399
Stuffit Deluxe 3	48
SUM II/ SAM 3.0	87/58
System 7.0	85
Think C	153
Think Pascal 3.0	159
TOPS 3.1 Network Bundle	172
Ultra Paint	115
Vellum 2.0	1399
Virex	46
Wealth Builder	129
White Knight	75
WordPerfect 2.03	265
Write Now 2.0	111

HOW TO ORDER Payment: Visa, Mastercard, Discover (no surcharge), checks, and COD's. $6,000 maximum on COD's **Tax:** Texas residents add 8% sales tax. **Prices** and items subject to change and availability. **International:** 5% surcharge on international orders. **Mail In:** Orders accepted with a $10 surcharge. **Terms:** You are not charged until your order is shipped. Phone charges cannot be refunded. **Shipping:** minimum $5-UPS Ground, Blue, Red, Federal Express. ***Returns** must be in original condition and package and require an RMA#. Seal must not be opened on software. Returns may be subject to a restocking fee. Ask for details when ordering. Bottom Line Distribution cannot be responsible for errors in typography or photography.

VISA · MasterCard · DISCOVER · Federal Express

BOTTOM LINE DISTRIBUTION

Fax: 1-900-420-8770 $1.0 PER FAX
1800 Rio Grande, Austin, Texas 78701

1-900-420-3737

$2 PER MIN

TOLL-FREE TECHNICAL SUPPORT 1-800-333-3353

MacLand®

America's Largest Macintosh Hardware Source

Quantum Hard Disk Drives



INTERNAL

52MB	$229
105MB	$339
210MB	$639
425MB	$1199

EXTERNAL

52MB	$289
105MB	$389
210MB	$689
425MB	$1299

SyQuest TECHNOLOGY

Removable Hard Disk Drives

44mb Removable Drive	$399*
88mb Removable Drive	$599*

*Cartridge Not Included

CARTRIDGES	44MB	88MB
Single Cartridge	$66	$109
5 Pak - Each	$64	$105
10 Pak - Each	$62	$99





MacLand®

Combination Units

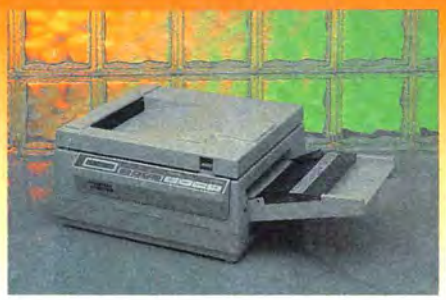
SyQuest 44/SyQuest 44	$799
SyQuest 44/Quantum 52	$699
SyQuest 44/Quantum 105	$799
SyQuest 44/Quantum 210	$1,099
SyQuest 44/Quantum 425	$1,499
SyQuest 88/SyQuest 88	$1,199
SyQuest 88/Quantum 52	$899
SyQuest 88/Quantum 105	$999
SyQuest 88/Quantum 210	$1,299
SyQuest 88/Quantum 425	$1,699

To Order Call 1-800-333-3353 Customer Service Call 1-800-388-3118

MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802

24 Hr. Fax: (602) 345-2217

Printer Sale!



Microtek
TrueLaser
- 300dpi • 6ppm
- PostScript® Clone
- 35 ResidentTrueType Fonts
- RISC Processor

$1,349



QMS
PS410
- 300dpi • 35 PostScript® Fonts
- Auto-Switching:Mac/PC
- 4 ppm Print Speed

$1,699

QMS

NEW!

QMS
815MR
- 300 or 600 dpi
- PostScript® Compatible
- Auto-Switching:Mac/PC
- 8 ppm Print Speed

$4,250



NEC
Silentwriter 2 MODEL 90
- 300dpi • 35 PostScript® Fonts
- 6 ppm Print Speed
- 2mb RAM

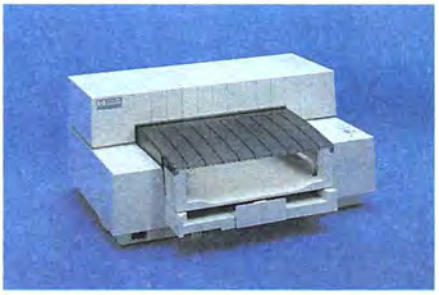
$1,599

NEC



RasterOps
CorrectPrint 300
- 300dpi • Dye-Sublimation
- Photorealistic Color Printer
- Introductory Price

$7,499



Hewlett Packard
Deskwriter **$419** Color Deskwriter C **$769**
- Thermal Inkjet Method • 300dpi
- Letter, Legal, Envelope, Transparency



QUME
MacPublisher
- RISC Processor • 2MB RAM
- PostScript® Compatible • 6ppm
- 300dpi

$1,599



QUME
CrystalPrint Pub II
- RISC Processor • 6ppm
- PostScript® Compatible
- 3MB RAM • 300dpi

$1,995

Qume



QUME
CrystalPrint Express
- RISC Processor • 12ppm
- 300dpi
- PostScript® Compatible
- 3MB RAM

$2,995

To Order Call 1-800-333-3353 Customer Service Call 1-800-388-3118
MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802
24 Hr. Fax: (602) 345-2217

MONITORS



ORION TECHNOLOGIES
MacScan ULTRA
•14" Color Multiscan Monitor
Your Price $369

SONY
CPD-1304
•14" Trinitron Color Monitor
Your Price $599

GOLDSTAR
1450 Plus
•14" Color Monitor
Your Price $349

SEIKO
CM1445
•14" Trinitron Color Monitor
Your Price $589

E-MACHINES
T-16 Trinitron
•16" Color/8 Bit Bundle
Your Price $1,995

Lapis Technologies, Inc.



ColorServer LC-17 ..**$379**
ColorServer PDS/30-17 .....**$379**
ColorServer II-17.....**$379**
ColorServer LC-21 ..**$509**
ColorServer PDS/30-21 .....**$509**
ColorServer II-21.....**$509**



Full Page Display/Card Bundle **$489**

Two Page Display/Card Bundle **$899**

MAGNAVOX COLOR MONITOR BUNDLES

*14" Color Monitor/ 24 BIT Video Card (II) **$929***
*14" Color Monitor/ 24 BIT Video Card (SE30).....**$1,069***
*20" Color Monitor/ 8 BIT Video Card (II).....**$1,999***
*20" Color Monitor/ 8 BIT Video Card (SE30) **$1,999***



MAGNAVOX
9CM080
•14" Color Monitor
Your Price.....$469

MagnaScan/20
•20" Color Monitor
Your Price.....$1499

TWO YEAR WARRANTY ON BOTH!



NEW! From ORION Technologies
MacScan ULTRA
14" Color Multiscan Monitor
$369



MICROTEK
600zs Color Scanner
•600dpi Scanning
•Includes Photoshop 2.0
Special Price
$1399

NEW!

MICROTEK
ScanMaker1850s
•1850dpi Slide Scanner
•Includes Photoshop 2.0
Special Price
$2,199

To Order Call 1-800-333-3353 Customer Service Call 1-800-388-3118
MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802
24 Hr. Fax: (602) 345-2217

MEMORY CONNECTIVITY

TOLL-FREE TECHNICAL SUPPORT 1-800-333-3353

ASANTE

Ethernet Cards for Macintosh®

MACCON+IIE64 (Mac II Thick/Thin w/64k) **$299**
MACCON+IIET 64(Mac II Thick/10BaseT w/64k) ... **$299**
MACCON+LC w/ FPU
(MacLC Direct Slot: Thin/10BaseT) **$379**
MACCON+30IET (Mac SE30 Thick/10BaseT) **$299**
MACCON+30IET64
(Mac SE30/SI 10BaseT w/64k) **$299**

ORION TECHNOLOGIES

Ethernet Adapter Cards...Lifetime Warranty!

Nubus Thin/10T/AAUI **$219**
SE/30 10T/Thin **$219**
IIsi 10T/Thin
(Includes: PDS/30 Adapter w/ FPU Socket) **$279**
LC 10T/Thin **$219**

APPLIED ENGINEERING

MacRam Classic 1 Meg **$125**
MacRam Classic 3 Meg **$269**
Datalink/Mac™ (Int. 2400 baud modem) **$199**
QuadraLink™ **$199**

PSI

PSI Integration

PSI MultiColor
8/16 bit Color LC Video SIMM **$105**
Crunch-it!
68882 FPU for LC **$119**
LC Bundle
MultiColor and Crunch-It! bundled **$199**
030 Adapter Card
IIsi Extender Card w/ FPU & Cache socket. **$129**
Cache-It!
64k, 20MHz Cache SIMM **$199**
Cache-It! Bundle
030 Adapter Card and Cache-It! Bundle **$309**
COMstation 1 Modem
Ext. 9600bps s/r fax, 2400bps s/r data **$239**
COMstation 2 Modem
Ext. 9600bps s/r fax, 2400bps s/r data w/ V.42, V.42bis, V.23, MNP5 ..... **$289**
COMstation 4 Modem
Ext. Networkable 9600 s/r fax, 2400 s/r data **$459**

MacLand® SIMMS

1mb 100ns **$32**
1mb 80ns **$39**
4mb **$159**
FX Simms
1mb 80ns..... **$59**
4mb 80ns..... **$240**

Other Great Deals!

Kensington Turbo Mouse ADB **$109**
MacPro Keyboard **$139**
Daystar FastCache IIci **$269**
ZoomExt. 24/96 S/R Fax Modem **$149**
Abaton Interfax 24/96 Modem **$299**

Payment Methods Accepted:

MasterCard VISA DISCOVER MacLand

C.O.D.'s payable with Cashier's Check or Money Order.

MacLand
1234 1234 1234 1234
JOE MACINTOSH

Instant Credit NOW!
With the MacLand Credit Card you can pay for your purchases in easy monthly installments Credit applications can be taken over our toll free 800 number. Most applications are approved the same day! Call today and get the details on how to obtain your own personal MacLand Credit Card.

ATTENTION:
Businesses, Government, Educational Inst., Military

- Fax us your P.O. for same day shipment!
- P.O.'s accepted on approved accounts.
- All shipments are FOB origin.
- Prices do not include freight.
- Favorable terms offered to established accounts.
- LEASING option available... Call for details and pricing!

To Order Call 1-800-333-3353 Customer Service Call 1-800-388-3118
MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802
24 Hr. Fax: (602) 345-2217
CIRCLE 150 ON READER SERVICE CARD.

BIG, FAST DRIVES!

FILESERVERS
PHOTOSHOP
MULTIMEDIA

The MICRODISK from Micropolis... Large Capacity, High-Performance External Drives

1.75 Gigs
1.34 Gigs
1.03 Gigs
670 Megs
340 Megs

According to Byte magazine's extensive tests, the Microdisk is the fastest MAC drive available. With record-setting effective access times as low as 3.9 milliseconds and data transfer rates as high as 10.0 megabytes/second, the Microdisk is the drive you need for high performance applications.

KILLER RESULTS — BYTE MAGAZINE — FIRST PLACE OVERALL

And, the Microdisk tops the list for reliability with a 150,000 hour mean-time-between-failure rating. Combine all this with a five-year disk drive warranty and you have the best drive for your money.

MICROPOLIS



If You Need High-Capacity, Speed and Reliability... Call Us Today!

DIRECTTECH
800·279·5520

CIRCLE 33 ON READER SERVICE CARD.

MacUser

SAVE UP TO

50%

It's like getting one year FREE!



Have 12 monthly issues of the ultimate resource for Macintosh users delivered right to your door at an unbelievably low price.

- One year (12 issues) for $19.97. **Save 44%.**
- Two years (24 issues) for $35.40. **Save 50%.**

Plus, with your paid order you'll receive a very special bonus! It's our exciting pop-up, power-tip resource—**1,001 Hints & Tips Disk for the Macintosh—FREE.**

Call toll-free to place your order.

1-800-627-2247

Savings based on annual newsstand price of $35.40. Add $18 per year for postage to Canada and all other countries outside the U.S., U.S. currency only. Please allow 30 to 60 days for delivery of first issue. Your disk will be shipped upon payment.

NEW LOWER PRICES

POWER PRICED



POWER PACKED

POWERDrive™

HARD DRIVES *International*

Insight™

800-927-3182

Hard Drives International • 1912 West Fourth Street • Tempe, Arizona 85281
Nat'l. Accounts: 800-755-3928 Sales: 602-350-1128 Int'l. Accounts: 602-350-1144
FAX: 602-350-1180 FAX: 602-350-1150 FAX: 602- 350-1188

Price/availability subject to change without notice. All items are NEW. P.O.'s accepted from qualified buyers- NET 20 Add $13 shipping for EXPRESS APO/FPO orders. P.O.'s. 30-day Guarantee & 1 Year Replacement Policy may have some restrictions. Shipping is not refundable. All trademarks are the properties of their respective owners. PowerDrive is a tradename of Insight Distribution Network, Inc. 1991 Insight Distribution Network, Inc. *2 Year Replacement Policy

POWERDrive™

HARD DRIVES

Mbytes	Mechanism	Access	Internal	External
42	Seagate	28ms	$219	$249
52LPS	Quantum*	17	$249	$299
80	Maxtor	17	$279	$339
105LPS	Quantum*	16	$349	$399
210	Maxtor	15	$599	$679
210	Quantum*	16	$629	$689
320HH	Maxtor	14	$999	$1049
320HH	Micropolis	14	NA	$1199
660FH	Micropolis	16	NA	$1599
1050FH	Micropolis	14	NA	$2199
1050FH	Seagate	14	NA	$2199
1346FH	Micropolis	14	NA	$2699

REMOVABLE HARD DISK

SyQuest 44Mb $449
25ms. Includes 45Mb cartridge. Extra Cartridge $79

SyQuest 88Mb $649
20ms. Includes 88Mb cartridge. Extra Cartridge $119

OPTICAL STORAGE

CD/ROM $539
350ms. External. Uses Chinon mechanism.

TAPE BACKUP

2.0Gb 4mm DAT $1495
Includes Retrospect™ software, 1 cartridge & cables.

250Mb SANKYO $549
External. Includes tape & backup software.

Extra 150Mb Tape $49

MEMORY

1Mb (1x8-80ns) $39
4Mb (4x8-80ns) $159

POWER PRICED

- NEW super low prices
- We buy quality components in huge volume & pass the savings to you!

POWER PACKED

- Choice of brand name hard drives
- Super FAST access time: 12ms - 28ms
- 50,000+ hours MTBF
- Whisper-quiet fan
- 50-pin connectors to daisy-chain
- Steel case for low heat & support

POWERDrives

- By the experts at HDI, since 1987
- Compatible with ALL Mac Systems
- Toll-free technical support
- Step-by-step Manual included
- 30-day "Worry-Free" Guarantee
- 1 & 2 Year Replacement Policies

WORRY-FREE 30 Day GUARANTEE
1 & 2 YEAR REPLACEMENT

A CONTRIBUTION FROM EACH SALE HELPS SAVE OUR EARTH IS DONATED TO AN ENVIRONMENTAL CHARITY

292 HDC

100% FINANCING
For purchases of $1000 or More for Businesses with Approved Credit

MacCenter™

The Center Of The Macintosh Universe™

Quadras & PowerBooks IN STOCK!
Call for Pricing

microLaser Turbo

This printer is so fast it gets speeding tickets!

microLaser Turbo CALL!
9 pages per minute



microLaser Turbo XL CALL!
16 pages per minute

- Weitek RISC processor
- Postscript Level 2
- 35 Adobe scalable fonts
- 2.5 Meg RAM standard
- Upgradable to10.5 Meg RAM
- Mac & PC compatible
- 3 Interface Ports: Appletalk, RS-422, RS-232-C
- Automatic switching between ports - all ports are hot
- Automatic emulation switching
- Free Paper Tray Management Software
- Optional envelope feeder
- Optional 500 sheet second paper drawer
- Hewlett-Packard LaserJet Series II emulation
- ***6 Times Faster Than Other Postcript Printers***

AppleTalk Included
We stock all accessories & supplies
110 & 220 Volt microLasers Available

NEW! microLaser Plus
The microLaser is now the microLaser Plus, with a 9 poge per minute engine!

microLaser Plus

PS17	$47/mo*	$1265
PS35	$58/mo*	$1565

microLaser XL

XL PS17	$90/mo*	$2425
XL PS35	$100/mo*	$2725

UPGRADE your microLaser or microLaser XL to a Turbo CALL!

SIMMS

4 Meg SIMMS *(with trade in)* **$115**
1 Meg SIMM **Call!**
(80ns)

SyQuest

$68
Per 45 Meg Cartridge
$115
Per 88 Meg Cartridge

Postscript Printers

CO STAR LabelWriter II/ II Plus		$189/$299
AddressWriter Envelope Printer		$479
GCC Technologies		
PLPII, PLPIIS	4/8 ppm	Call!
BLPII, BLPIIS, BLP Elite	4/8 ppm	Call!
WriteImpact, WriteMove		Call!
NEC		
Silentwriter2 Model 90	6 ppm•16 MHz	$1549
Silentwriter2 Model 990	8 ppm•32 MHz	$2895
QMS		
PS 410	4 ppm•16 MHz	$1645
PS 815MR, PS 825MR	8 ppm•20 MHz 600 dpi	Call!

We Stock Toner and All Accessories for the Printers We Carry.

Scanners

Caere TYPIST	$465
Sharp	
JX-320, JX-450, JX-600	Call!
UMax	
UC630 Color (600 DPI)	$1395

Adobe PhotoShop 2.0 **$489** SPECIAL

Buy this scanner – get an EMAC Silhouette trackball for $20!



Abaton Scan 300/Color **$899** $1295 w/PhotoShop



Microtek 600ZS **$1399** w/PhotoShop



Data Modems

2400 bps		
Computer Peripherals, Inc.	5 Year Warranty	
2400SE		$79
ViVa 24	All Viva modems include	$125
ViVa 24m (MNP 5)	free software & cable!	$179
Global Village Teleport		$129
Prometheus	Free software & cable!	
ProModem 2400Mini *Plus*	V.42bis	$139
9600/14,400 bps		
Computer Peripherals, Inc.	5 Year Warranty	
ViVa 9642e	V.32, V.42, V.42bis	$479
Hayes Ultra 9600	V.32, V.42, V.42bis	$695
US Robotics Dual Standard	V.32bis	$895



New Low Price! DoveFax **$249**

Fax Modems

Abaton		
InterFax 24/96	Networkable! Ask for Details.	$279
DOVE DoveFax		$249
DoveFax Plus		$325
DoveFax Lan		Call!
Global Village		
TelePort		$179
TelePort PowerPoint V.32		Call!
Prometheus		
9600M Plus	V.32, V.42, V.42bis	$599
Ultima 14.4/9600	V.32bis, V.42, V.42bis	$689
USR Motorola FasTalk FAX32	V.32, V.42, V.42bis	Call!

800-950-3726
FAX 512-476-3726
International Orders 512-476-7466

US Robotics Courier
"Fastest V.32bis modems" - InfoWorld
$695



This ad is too small for us to list all the Macintosh hardware we carry; so, if you don't see it listed, call us.

©MacCenter 1991, 1992

Prices valid 1/1/92 - 1/28/92

MacCenter™

The Center Of The Macintosh Universe™

Macintosh Systems
MacCenter Buys and Sells New and Used Systems

Classic Acceleration!

Tired of the big Macs kicking sand in your face? Get a ***Classic Accelerator!***™ with the unparalleled speed, power and productivity of the 68030 for the Mac Classic! It has it all: 16 MHz 68030 CPU, 20 Megabytes of RAM using 4 meg SIMMs, optional 68882 co-processor, System 7.0 compatibility, bootable RAM Disk, optional video adaptors permitting use of up to two page monitors, and optional Virtual 3.0 from Connectix. *And now with new low pricing, it's a better deal than ever before!*

NewLife™



Classic Accelerator!™ ***Faster than the Classic II!*** **$569**

Your SE, Plus, 512K growing moss on it's north side? Get the accelerators MacWorld called the "Best Value" in compact Mac Acceleration!

SE 16 MHz 68030	***Faster than most 25's***	**$399**
SE 25 MHz 68030	***Faster than most 33's***	**$679**



Thirty-Day Money Back Guarantee!

ONE CARD FITS ALL!

DayStar again leads the Mac world by delivering incredible power, convenience and cross-platform transportability for the Mac. Buy **one card** now and transfer it to your new Mac when you trade up. Triple your performance. Optional math coprocessor available.

PowerCache 33 MHz, 40MHz & 50 MHz available for Mac II, IIx, IIci, IIcx, IIsi, LC, & SE/30!

PowerCache 33 MHz	**$699**
PowerCache 40 MHz	**$895**
PowerCache 50 MHz	***Call!***
SCSI PowerCard	**$995**

FastCache Card For Both the IIci & IIsi
FastCache IIci & IIsi **$269 & $299**

Removable Drives

EAGLE™

The Only Removable Drives With A Five Year Warranty!

Eagle SyQuest	**$499**	***All Eagle Drives include a Metal Case, a Universal Power Supply, 15 Megs of Shareware and are available with a 5 year warranty!***
Eagle 88	**$795**	

PLI Infinity 40 Turbo ***Call!***
Infinity 88 Turbo **$895**

Iomega
Bernoulli 90mb *Cartridges for $145* **$799**

RAM PowerCard



DayStar's RAM PowerCard will make your disk intensive tasks *scream!* Place up to 16 standard 1 Meg, 4 Meg or 16 Meg SIMMs on this NuBus card for up to 256 Megs of memory.

RAM PowerCard **$499**

Monitors

Ikegami CT20" Sony Trinitron

w/ 8 bit card	$2565
w/24 bit card	$2895
w/24 bit accelerated	***Call!***

NEC FG Monitors ***Call!***

RasterOps Systems ***Call!***

Seiko CM-1445 14"	**$589**
with RasterOps 24S	$979
with RasterOps 264 for SE/30	$1175

Hard Drives

Five-Year Warranty!

		Int	Ext
385 mb	*4.4 ms*	**$999**	**$1099**
765 mb	*4.6 ms*	**$1399**	**$1499**
1.2 Gig	*4.1 ms*	**$1999**	**$2099**
1.5 Gig	*4.1 ms*	**$2599**	**$2699**
1.6 Gig	*11.5 ms*	**$2899**	**$2999**
2 Gig	*3.9 ms*	**$3399**	**$3499**

Drives are SCSI-2, System 7.0 & A/UX compatible, carry a Five-Year Warranty, include brackets or metal cases, universal power supplies, cables, formatting software and 15 MB of shareware.

Thirty-Day Money Back Guarantee!

MacCenter™ also carries fine drives from GCC, Quantum, Hewlett-Packard, Micropolis and Seagate.

Optical Cartridges 512K & 1024K $125





We Will Not Be Undersold!

E-MACHINES

Apple's 16" Monitor of Choice for the Quadra 700 and 900!

Rated #1 three years in a row by MacUser!, the T16 and now the E16 are the industry standards.
We will meet or beat any of our mail order competitor's deliverable prices for in-stock items.

ColorPage T16, E16, TX & T19	***Call!***
Futura EX, SX/8, SX, & MX	***Call!***

SUPERMAC

19" Platinum Monitor (Grey Scale/Mono)		**$999**
Spectrum/8•24 PDQ		**$999**
Monochrome Card		**$349**
VideoSpigot	LC, IIsi, & NuBus	***Call!***
VideoSpigot Pro	IIsi, & NuBus	***Call!***

Advantages Of Dealing With The Center Of The Macintosh Universe

- ***People answer our phones.*** We don't like automated answering systems. Call and talk to someone, instead of some thing.
- ***No Surcharge Or Minimum*** with MasterCard and Visa.
- ***Your credit card is not charged*** until your order is shipped.
- ***Personal checks, company checks,*** money orders and cashier's checks are accepted. Money orders and cashier's checks clear immediately; please allow ten days for personal and company checks to clear.
- ***APO and FPO orders are accepted*** with no minimum or surcharge.
- ***Purchase Orders:*** Educational, Government and Institutional purchase orders are accepted with thirty (30) day terms. Corporate purchase orders are accepted with 30 day terms upon credit approval. There is no minimum or surcharge for purchase orders.
- ***International Orders:*** We accept MasterCard, Visa, US money orders, US cashier's checks, wire transfers, and letters of credit (upon approval) for orders in excess of $100,000. We do not require minimum orders or impose a surcharge for international orders, whether placed by mail, fax or telephone.
- ***No sales tax,*** except for Texas residents.
- ***Shipping:*** US shipments (including Alaska and Hawaii) are by UPS and Airborne Express. Canadian shipments are by Airborne Express and TNT. Foreign shipments are delivered by the most cost effective delivery service. We will ship by any other carrier, at a customer's request.
- ***Money Back Guarantee:*** Most products carry a manufacturer's 30 or 60 day money back guarantee. Please ask for details when ordering.
- ***All prices, promotions and product availability*** are subject to change without notice. We regret we cannot be responsible for typographical errors and cannot guarantee compatibility of all products.
- ***All returns must have an authorization number.*** Please call 512-476-7466. All returns or refused shipments are subject to a restocking fee.
- ***Free catalog*** when you send in your reader service card.
- ***Hours:*** 8:00 am - 8:00 pm CST M-F
  10:00 am - 4:00 pm CST Saturday
  Sunday: Call, you may get lucky.

AIRBORNE EXPRESS UPS MasterCard VISA

MacCenter™
812 San Antonio Street; Suite 406 • Austin, Texas 78701-2224

800-950-3726
FAX 512-476-3726
International Orders 512-476-7466

This ad is too small for us to list all the Macintosh hardware we carry; so, if you don't see it listed, call us.

Circle 1 on reader service card.

©MacCenter 1991, 1992

Mac and MORE INC.

Your Mail Order SuperStore™

Mon - Thur	Friday	Saturday	Eastern and Mountain
9:00 - 9:00	9:00 - 6:00	10:00 - 6:00	

West Coast & Canada Sales Office

4730 Walnut, Suite 105
Boulder, Colorado 80301

800-846-4MAC West Coast and Canada
303-447-2732 International
303-447-3973 Corp. Fax
303-447-8051 Fax

East Coast Sales & Corporate Office

5426 Beaumont Center Blvd., Suite 300
Tampa, Florida 33634

800-945-1MAC East Coast
813-886-9534 International
813-888-9535 Corp. Fax
813-881-0634 Fax
800-945-TECH Tech Support

800-945-TECH Tech Support

We now have a new toll-free line for handling your technical calls faster and more efficiently. And, we'll continue to find ways to make buying from Mac and More a smart decision.

FREE SHIPPING Restrictions Apply

CPU's and More...

Free 1200 Baud Hayes Modem !
Buy any Apple system and a monitor from Mac and More and we'll give you a modem. But supplies are limited so place your order while they are still in stock!!!

Macintosh Classic	$845.00
Macintosh Classic 2/40	$1199.00
Macintosh LC 2/40	CALL FOR NEW LOW PRICES !
Macintosh IIsi 3/40	
Macintosh IIci 5/0	
Macintosh IIfx 4/0	$3899.00
Mac IIsi NuBus or 030 Direct Card	$189.00
Apple Extended Keyboard	$160.00
Apple Standard Keyboard	$90.00
MacPro Plus Extended Keyboard	$124.00

The New Macs are here!!!

Macintosh Classic II	CALL
Macintosh PowerBook 100, 140, & 170	CALL
Macintosh Quadra 700, and 900	CALL

...and we have PowerBook memory upgrades as well as Quadra VRAM

Systems and More...

Mac LC Student Package — $2449
4 Mb of RAM, 40 Mb internal hard disk, mouse, microphone, keyboard, Apple 12" RGB monitor and StyleWriter printer. Add $470.00 and you can buy this package with a Personal LaserWriter LS.

Mac IIsi Starter Package — $2899
3 Mb of RAM, 40 Mb internal hard disk, Apple standard keyboard, mouse and an Apple 13" RGB color monitor.

Mac IIsi Office Package — $4299
5 Mb of RAM, 120 Mb internal hard disk, mouse, microphone, Apple standard keyboard, Apple 13" RGB monitor, and Personal LaserWriter LS.

Mac IIci Designer Package — $6779
8 Mb of RAM, 170 Mb internal hard disk, mouse, Apple extended keyboard, Radius Color Pivot with built-in video, and Apple Personal LaserWriter NT.

We do custom configurations!

Extended Warranty Service for your Macintosh

CLUB 24

The fastest-growing direct reseller of Macintosh systems can double the warranty on your Mac system. Club 24 Services include:

- 24 month warranty on Apple products
- 72 hour repair or replace turn around
- Shipping via FedEx included both ways

Want more details? Call!

Video and More...

Apple 12" Monochrome Monitor	$229.00
Apple 12" RGB Monitor	$429.00
Apple 13" RGB Monitor	$669.00
Apple 15" Portrait Monitor	$769.00
Apple Two Page Monitor	$1199.00
Apple 21" Color Monitor	NEW
Seiko 14" Trinitron RGB	$629.00
Sony 14" Trinitron RGB	$649.00
Macintosh Display Card 8•24	$545.00
Macintosh Display Card 8•24 GC	$1349.00
512K VRAM Upgrade for Mac LC	$99.00

High-end Video and More...

We now carry E-MACHINES
Call for the most competitive prices around!

RasterOps

21" Hitachi Color System	
with RasterOps 24XLi	$5099.00
19" Color Trinitron Signature System	
with RasterOps 8XLi	$3729.00
19" Hitachi Color Systems	
with RasterOps 8XLi	$2789.00
with RasterOps 8XL	$2329.00
Mac LC and Classic Systems	
RasterOps 8LC 19" Hitachi System	$2399.00
ClearVue/LC 19" Monochrome System	$1199.00
ClearVue/Classic 19" Mono System	$1199.00
Mac Display Boards	
RasterOps 24XLi Display Board	$2299.00
RasterOps 8XLi Display Board	$959.00
RasterOps 8XL Display Board	$449.00
RasterOps 24si Display Board	$579.00
ClearVue/GSXL Gray Scale Board	$639.00
Multimedia Boards	
RasterOps 24XLTV Board	$2559.00
RasterOps 24STV Board	$1169.00
CorrectColor Calibrator	$1899.00
Expresso Slide Scanner	$669.00

Radius

Pivot Displays	
Color Pivot Display with soft pivot	$1329.00
Color Pivot 8-bit System	$1840.00
for SE/30, LC, II, IIsi	
Pivot Display with soft pivot	$755.00
Pivot 8-bit System	$1012.00
for SE/30, LC, and NuBus	
Full Page Displays	
Full Page Display for Classic	$824.00
Full Page Display for LC	$886.00
Full Page Display for IIsi and IIci	$629.00
gets 16 shades of gray w/ built-in video	
Color Systems	
Radius PowerView SCSI Interface	$493.00
PrecisionColor 8 & 8si Interface Card	$511.00
PrecisionColor 8x & 8xsi Interface Card	$734.00
PrecisionColor 24x & 24xsi Int. Card	$1624.00
Radius Color Display 20" (Multiscan)	$2749.00
Radius Color Display 19" (Trinitron)	$2749.00

Best Sellers and More...

Apple 7.0 Personal Upgrade Kit	$99.00
Abaton InterFax 24/96	$279.00
Adobe Type Manager 2.0	$59.00
Adobe Illustrator 3.0	$379.00
Adobe Photoshop	$599.00
Aldus PageMaker 4.0	$499.00
Aldus Freehand 3.0	$399.00
Claris MacDraw Pro	$285.00
Claris MacWrite II	$139.00
Claris FileMaker Pro	$215.00
DoveFax Plus Modem	$349.00
Kensington Turbo Mouse ADB	$109.00
Microsoft Word 4.0	$245.00
Microsoft Excel 3.0	$309.00
Prometheus ProModem 9600MPlus	$599.00
Quark Xpress 3.1	$569.00

Printers and More...

QuickDraw	
Apple ImageWriter II	$429.00
HP DeskWriter w/ AppleTalk	$429.00
HP DeskWriter C w/ AppleTalk	$749.00
GCC PLP II & IIS	Call
TrueType	
Apple StyleWriter	$429.00
Apple Personal LaserWriter LS	$599
Special Low Price--for a limited time!	
Microtek TrueLaser	$1795.00
PostScript	
NEW! Apple LaserWriter IIf	Call
NEW! Apple LaserWriter IIg	Call
Has Ethernet connection built-in	
Apple Personal LaserWriter NT	$1799.00
Epson EPL-7500 with RISC processor	$1949.00
GCC BLP Elite	Call
TI MicroLaser PS17 w/AppleTalk	$1299.00
TI MicroLaser PS35 w/AppleTalk	$1599.00
NEC SilentWriter 2 Model 90	$1649.00
QMS PS-410	$1749.00
QMS PS-815MR	$4199.00

Networks and More...

Phone network adapters	$19.00
Asanté FreindlyNet Media Adapters	$89.00
Asanté FriendlyNet Cards	$249.00
Asanté MacCon+ 16K Cards	$199.00
Asanté MacCon+ 64K Cards	$259.00
Asanté 10T Hub	$679.00

Accelerators and More...

DayStar FastCache IIci	$269.00
DayStar FastCache IIsi	$289.00
DayStar 33 MHz PowerCache LC	$669.00
Get virtual memory on your LC with System 7	
DayStar 40 MHz PowerCache	$869.00
DayStar 50 MHz PowerCache	$1335.00
Available for the LC, SE/30, II, IIx, IIcx, II si & IIci	
Radius Rocket 040 Accelerator	$1629.00

Scanners and More...

NEW Apple One Scanner	CALL
Caere Typist Hand Held OCR	$479.00
Epson ES-300C Color Scanner	$1449.00
includes interface and software	
Microtek 600ZS Color Scanner	$1449.00

ETC Peripherals

Drives and More...

Internal	
ETC 40 Mb Quantum LPS, 12 msec	$199.00
ETC 52 Mb Quantum LPS, 12 msec	$229.00
ETC 105 Mb Quantum LPS, 12 msec	$339.00
ETC 120 Mb Maxtor Cheyenne, 15 msec	$359.00
ETC 170 Mb Quantum PRO, 9 msec	$559.00
ETC 210Mb Quantum PRO, 9 msec	$629.00
ETC 213 Mb Maxtor LXT, 15 msec	$599.00
ETC 340 Mb Maxtor LXT, 13 msec	$999.00
ETC 425 Mb Quantum PRO, 9 msec	$1199.00
ETC 535 Mb Maxtor LXT, 13 msec	$1699.00
The drives below can be used in the Mac II, IIx, and IIfx.	
ETC 307 Mb WREN-4, 14 msec	$1129.00
ETC 337 Mb WREN-Runner-1, 10.7 ms	$1279.00
ETC 613 Mb WREN-5, 16.5 msec	$1349.00
ETC 676 Mb WREN-6, 15.5 msec	$1399.00
ETC 676 Mb WREN-Runner-2, 12 ms	$1699.00
ETC 1.05 Gig WREN-7, 15 msec	$1949.00
ETC 1.2 Gb Maxtor Panther, 13 msec	$2099.00
External	
ETC 40 Mb Quantum LPS, 12 msec	$259.00
ETC 52 Mb Quantum LPS, 12 msec	$299.00
ETC 105 Mb Quantum LPS, 12 msec	$419.00
ETC 120 Mb Maxtor Cheyenne, 15 msec	$439.00
ETC 170 Mb Quantum PRO, 9 msec	$639.00
ETC 210Mb Quantum PRO, 9 msec	$699.00
ETC 213 Mb Maxtor LXT, 15 msec	$679.00
ETC 340 Mb Maxtor LXT, 13 msec	$1079.00
ETC 425Mb Quantum PRO, 9 msec	$1279.00
ETC 535 Mb Maxtor LXT, 13 msec	$1779.00
ETC 307 Mb WREN-4, 14 msec	$1279.00
ETC 337 Mb WREN-Runner-1, 10.7 ms	$1429.00
ETC 613 Mb WREN-5, 16.5 msec	$1499.00
ETC 676 Mb WREN-6, 15.5 msec	$1549.00
ETC 676 Mb WREN-Runner-2, 12 ms	$1849.00
ETC 1.05 Gig WREN-7, 15 msec	$2099.00
ETC 1.2 Gb Maxtor Panther, 13 msec	$2249.00

Removables and More...

ETC 45R SyQuest Removable — $429
Low price includes one cartridge.

ETC 88R SyQuest Removable — $599
New low price includes one cartridge.

ETC 45DR Dual SyQuest — $799
Two removable drives in one box. Includes one cartridge! The ETC 88DR Dual SyQuest Drive is also available for $1299.00

45 Mb Syquest Removable Cartridge	$63.00
88 Mb Syquest Removable Cartridge	$129.00

MACWORLD EXPOSITION
See us at booth No. 5820 in Brooks Hall

Terms and Conditions: Payment: Mac and MORE accepts Visa, MasterCard, CODs, and Purchase Orders. CODs are shipped Cash/Certified Check up to $10,000. Corporate and School Purchase Orders are Net-15 for orders over $2500 only, and are subject to credit approval. Warranties: All warranties on Macintosh or Apple brand products sold by Mac and More will be honored by Mac and More or its authorized agents only. Like all other Mail-Order resellers, Mac and More is not an authorized Apple reseller. All other manufacturers warranties are honored by Mac and More and the original manufacturer. Returns: All orders returned or refused will be charged a minimum 15% restocking fee. Call for an RTS before returning. Returns must be in original packing with software seals unbroken. Shipping: For orders over $1000 we ship to destinations in the continental US at no charge. Some large items may not be included in this offer. Ask for details when ordering. Terms, Conditions, and Prices are subject to change without notice or obligation. All products sold by Mac and More are new. We do not sell used equipment. © 1991 Mac and MORE, Inc. All rights reserved. 912111.1

CIRCLE 41 ON READER SERVICE CARD.

MACDIRECT

Specialists in Mac Storage

Hitachi Special!

Hitachi 420MB Int. $998
Hitachi 1.6 Gig Int. $2798
- 5 Year Warranty
- 150,000 Hrs MTBF
- 12 to 14ms access time!
- Incredibly Reliable!
- Perfect for the Power User



All 3.5" Drives are available in zero footprint (including a 40 watt power supply, and dual AC outlets), or micro cabinets as well as internal for all Mac's.

All 5.25" Drives are available in zero footprint external (including a 65 watt power supply, cables, and ext. terminators) or as internals for the Mac II, IIx, and IIfx.

Fujitsu Drives

		Internal	External
45 MB	3.5" Low Profile/Low Power3yr warr, 50,000MTBF	$188	$248
90 MB	3.5"3yr warr, 50,000 MTBF	$298	$368
135 MB	3.5"3yr warr, 50,000 MTBF	$378	$448
185 MB	3.5"3yr warr, 50,000 MTBF	$498	$568
330 MB	3.5" 5 yr warr., 200,000 MTBf*, 9ms Access	$1148	$1248
425 MB	3.5" 5 yr warr., 200,000 MTBf* 9ms Access	$1248	$1348
520 MB	3.5" 5 yr warr., 200,000 MTBf* 9ms Access	$1348	$1448
680 MB	5.25" 16ms 5 yr warr., 200,000 MTBf*	$1288	$1388
1.2 Gig	5.25" 1.5ms 5 yr warr., 200,000 MTBf* (MacWorlds Fastet Gig!)	$1988	$2088

Hitachi Drives

		Internal	External
425 MB	3.5" 5 yr warranty 13ms 150,000 MTBf*	$998	$1098
1.6 Gig	5.25" 5 yr warranty 12ms 150,000 MTBf*	$2798	$2898

* Mean Time Between Failure is the average life expectancy of a drive.

AT Tape Backup

VangDat 2.1 Gig Capability $1498
rDat 2.1 Gig Capability.....$1398

Up to 10 mb per minute backup time
Includes SoftBackup II for Fast network and

SyQuest 44MB & 88MB Removables

44MB Removable $448.00
88MB Removable $648.00
- 19ms Access time
- Both Drives include Cartridge
- Dual AC Outlets, 40 Watt power supply



00 K Floppy Drive $99

Fujitsu 800k.....$99.00!
- One year warranty
- Completely compatible
- Looks great!

CD ROM Drives

Toshiba 3301.....$568
- Includes driver CD carrier and cables
- 325ms access time
- MacWorld and MacUsers Highest Rated CD-ROM!

Chinon CDC-431 .....$598
- Includes driver CD carrier and cables,
- 350ms access time, includes 12 function audio remote control



Sharp 35 Font Laser Printer

Sharp 35 Font Postcript Printer $1298
- 6 pages per minute, 300DPI
- Includes Appletalk interface!
- 35 Adobe Postcript Fonts
- Letter legal and transperancies
- 1.5mb memory
- Sharp is the manufacturer of the TI Microlaser engine

Quantum Drives

	Internal	External
Q 52 MB 3.5" LPS	$248	$338
Q 105 MB 3.5"LPs	$368	$448
Q 120 MB 3.5"	$448	$548
Q 170 MB 3.5"	$598	$688
Q 210 MB 3.5"	$688	$748
Q 425 MB 3.5"	$1298	$1398



14" Monitors!

4" GoldStar Color.....$388
4" NEC Color $438
4" Sony Trinitron.....$498

e GoldStar 14" is plug compatible with IIsi, CI and the LC.
e NEC Macsync is plug compatible with IIsi, CI.
e Sony 1320 is plug compatible with the LC.

19" Monitors!

20" Philips Color System
w/RasterOps 8Bit.....$1498
W/National Semi. 24Bit.....$2298

19" Ikegami Trinitron Color
w/RasterOps 8Bit.....$2398
W/Natl. Semi. 24Bit.....$3198

19" Ikegami Grey Scale System
W/RasterOps 8Bit.....$1098

All monitor systems except NEC & GoldStar 14" include interface board and cable.



60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome All new Drives, Preformatted with latest stable system software , Factory warranty, Bracket, cables and software included/30 Day Money back Guarantee on all drive products. Prices, terms and availability subject to change without notice

800-621-8469

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00
Technical Service and Order Tracking call: 312-664-8225

MACDIRECT Specialists in Mac Storage

CIRCLE 106 ON READER SERVICE CARD.

YOU CAN'T AFFORD TO MISS



Aim with MacTel for your Apple solutions. MacTel Technology Corporation is a global corporation specializing in the design, manufacturing and distribution of a wide array of Macintosh peripherals. Our state-of-the-art surface-mount manufacturing facilities are located in Austin, Texas, which also hosts the hard drive assembly line, research laboratories and testing center.





INDEX MEMORY MODULES

GO FOR THE GOLD

MacTel manufactures and tests our memory modules in-house to ensure the highest possible quality and reliability. All our SIMMs use ***gold traces and contacts*** for greater conductivity and durability. Our field test failure is *less than 1%*! In fact, we have so much confidence in our memory products that we back them with a lifetime warranty.

- 1 Mb surface mounted/ low profile, 70/80 ns $37.95
- 1 Mb fx & LaserWriter II NTX SIMM, 70/80 ns $38.95
- 1 Mb x 9 SIMM, 70/80 ns $43
- 3 Mb Classic memory $99
- Mac LC V-RAM upgrade $65
- 4 Mb surface mounted SIMM, 80 ns, (IIcx, IIci, IIfx, IIsi and LC) $139
- 1 Mb TI microLaser PS 17/35 & XL upgrade $69



NEW
- 8 or 16Mb surface mounted, 70/80ns ..... $Call

NEW
- Powerbook memory upgrade ..... $Call

NEW
- Quadra V-Ram upgrade ..... $Call

ACCELERATOR BOARDS

Only Index Gold boards offer you the additional benefit of gold contacts & traces for greater durability, conductivity and reliability.



NEW
- **Index Mac IIsi 030 Direct Slot Interface** $99.00

On-board 68882/20 MHz math co-processor with adaptor for Macintosh IIsi. ***Benchmark*** software included.

NEW
- **Index LC Mathmate** $69.00

Accelerate math-intensive operations on your LC operations by up to 39% with a 68882/16 MHz math co-processor —and get a 15% overall CPU improvement. ***Benchmark*** software included.

- **Index CachePro / Mac IIci** $119.00

Increase the speed of your Mac IIci up to 33% with MacTel's new CachePro card.

NEW
- **Index Classic II Mathmate** $99.00

STORAGE SOLUTIONS

MacTel offers you a number of storage and back-up solutions, including a complete line of Index hard drives. Three of our drives have been rated 4 mice by *MacUser* Labs: the MacTel 45R drive (2/91), the Index 1.2 Gb drive (7/91) and the MacTel 2 GB DAT drive (10/91).

REMOVABLE - OPTICAL - TAPE

- **Index 45R** w/1 cartridge ♦♦♦♦ $479
- Index 88R w/1 cartridge $699
  Index 45R and 88R are bundled with ***Backmatic***® and ***AutoSave***®
- SyQuest cartridge SQ 400 ..... $69
- SyQuest cartridge SQ 800 ..... $119
- **2 GB DAT drive** w/*Retrospect* software and 1 tape ♦♦♦♦ $1499
- 2 GB DAT Tape $39
- 1.3 GB DAT Tape $35

NEW
- 1 GB Tahiti optical drive w/1 cartridge $3699
- 1 GB Optical cartridge $249
- 650 mb Optical cartridge $129

INDEX HARD DRIVES

The Index HD formatter is System 7 compatible and supports partitioning, password protection and is A/UX compatible.

	Internal	External
Quantum drives Index 3.5"		
52 Mb, 12 ms, Slimline	$249	$299
105 Mb, 12 ms, Slimline	$349	$399
210 Mb, 12 ms	$619	$679
425 Mb, 12 ms	$1349	$1399
Imprimis drives Index 5.25"		
320 Mb, 16ms	$1149*	$1199
330 Mb, 10.7 ms (Runner)	$1299*	$1399
640 Mb, 16 ms	$1399*	$1499
650 Mb, 10.7 ms (Runner)	$1699*	$1799
1.2 Gb, 16 ms ♦♦♦♦	$1999*	$2099

*Mac II, IIx and Quadra 900 only



MACINTOSH CPUS AND SYSTEMS

- Mac IIsi 3/40 ..... $2497
- Mac IIci 5mb $3297
- Mac LC ..... $Call
- Mac Powerbooks 100-140-170 ..... $Call
- Mac Quadras ..... $Call
- Mac Classic II ..... $Call
- Mac IIfx ..... $Call

NEW
TELNET phone net $12.99

KEYBOARDS

MacTel's Index line of ADB extended keyboards have an 105-key layout, 15 function keys, cursor control keys and number pad. The foreign language keyboards are bundled with their respective system software.

- Index English $99
- Index French, German, Swiss (French & German) $119

NEW
- Index Spanish $119

Contact the professionals at MacTel now for additional information. We handle only the best in Macintosh hardware, systems and peripherals, with names like Apple, RasterOps, Wacom, Sharp and our own top-quality VisionPro and Index brands. Call or fax for a free catalog.

3007 North Lamar, Austin, Tx 78705
512 / 451-2600 512 / 451-3323 FAX

To order from Europe 512 / 451-2600
Swiss office: 042/36-44-33
Singapore 2550890

mactel
TECHNOLOGY CORPORATION

800 • 950 • 8411

Index and VisionPro are registered trademarks of MacTel Technology.

ORDERING:

No surcharge for Visa or MasterCard. European banking service available. University, government, military NET 30 and corporate (on approval) purchase orders accepted. Please allow 10 days for personal and company checks to clear. Returned merchandise must be authorized. To expedite processing, call 512/451-2600 for RMA number. Defective merchandise will be replaced or repaired at MacTel's discretion. Shipping and handling charges are not refundable. Product must be in original shipping container including all packing materials. All products are subject to a 5% restocking fee. All products subject to availability. All prices are subject to change. Technical support M-F 8:30 to 5:30 C.S.T..

CIRCLE 154 ON READER SERVICE CARD.

SAMPO
Dual Page Monitor



Make that SE or SE/30 a Page Layout Powerhouse $799

High-resolution, black and white Macintosh display system featuring:

Ultra-low cost-to-features ratio.
One-year monitor-for-monitor replacement warranty.

Full-line compatibility with Macintosh "Nubus" and "PDS" machines.

Allows dual-screen operation with Mac SE and SE/30 models.

Full System 7.0 compatibility and operation.
Twenty inch diagonal monitor with 1024x768 pixel resolution, 72 dpi.

Ideal display size for many desktop publishing or CAD/CAM applications.

Hit the road with an APS Portable DAT

Compact size and a light weight! Based on Archive's Python 3.5-inch DAT mechanism, the APS Portable DAT weighs in at less than 4 pounds.

Extremely high capacity – 2.0 Gigabytes on the 90-meter DAT cartridge. Compatible w/both 60- and 90-meter cartridges.*

High speed random access to any file on the tape.

Uncorrectable error rate of less than 1 in 10^{15} bits.

Four Direct-Drive motors (4DD) eliminate belts and mechanical mode changes.

*Unequalled back-up flexibility with Retrospect® by Dantz Development.**

**Included*



2 Gb Portable DAT
1-800 235-2750 $1499

APS TECHNOLOGIES

Quantum

170mb $499



All external drives available in your choice, Zero-Footprint or Compact Portable case.

MB	INTL	EXTL
52	$229	$299
105	339	429
170	499	589
210	629	699
425	1299	1399

**Special Purchase. Available only While Quantities Last.*

For a limited time, with any drive purchase, you can buy Redux, Init Picker or Rival by Microseeds Publishing. Any one, $20; any 2, $33.95; all three, $44.95.

Maxtor

213mb $579



High speed drive selections available for all Mac II models, Classic, SE & SE/30

MB	INTL	EXTL
80	$259	$359
120	359	439
213	579	679
340	999	1099
535	1599	1749
760	1649	1799
1.2G	2299	2499

All external drives available in your choice, Zero- Footprint or Compact Portable case.

WREN 600MB $1499

MB	INTL	EXTL
300	1199	1349
300	1199	1299
330	1349	1499
425	1499	1599
600	1499	1649
630	1549	1649
630	1849	1949
1.2G	2099	2199

Quality

Economy

Toll-free

support

1- & 2-year

warranties

SyQuest 88MB $699



SQ-555	44mb	$479
SQ-5110	88mb	699
SQ-555	Dual	899
SQ-5110	Dual	1449

Toshiba CD ROM $579



3301 $579

Includes free "Nautilus" CD

Tape

-based sub-systems

includes

one cass.& Retrospect

Add'l cass. $17-$24

TEAC	155	$599
WangDAT		1349
WangDAT		1999
Python		1499

Retrospect Remote "10 Pack" available with tape drive purchase for $129.00.

Sonic Systems EtherNet

TwP/TnT	$199
Magic Bus	279
7-Port Hub	499
13-Port Hub	699

Order Ethernet 6-pack and get 6-User QuickMail by CE Software -Free - $1349

w/ Hub 1599

(Magic Bus add $75 ea.)

2-Page Monitor $799



Sampo 20" mono w/card $799

• 30-Day Money-Back Guarantee • All Drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.

• Disk-for-Disk Replacement Warranty • Quantum, Maxtor (excluding Panther 1.2G), Syquest and ARDAT Drives carry a two-year "parts & labor" disk-for-disk replacement warranty. WREN, Teac, WangDAT, Conner drives and Syquest Cartridges carry a one-year "parts & labor" disk-for-disk replacement warranty.

• Brackets and Cables Included • All Hard Drives include brackets, cables, cords and LED's required for operation in the specified Macintosh. All Hard Drives come pre-formatted with Apple's latest stable all-platform System software, 18.8 MB of Publicly Distributable software from the B'MUG Library, and the "ALLIANCE POWER TOOLS" SCSI formatter/hard partitioner.

• Toll-Free Technical Support • Toll-Free Technical Support, 9:30am to 7pm Monday thru Friday, Central Time. As often or for as long as you need.

• Prices and Specifications subject to change without notice.

AMEX ACCEPTED
GOV., UNIV., PO's, NO SURCHARGE

DISCOVER | AMERICAN EXPRESS | MasterCard | VISA

VISA/MC, DISCOVER NO SURCHARGE
ACCEPTED CORP. PO's, NO SURCHARGE

Toll Free U.S. & Canada

1-800 235-2750

M-F 7AM–9PM CT. SAT 10AM–4PM CT
TOLL FREE UK: 0800-897-545. TOLL FREE AUSTRALIA: 0014-800-125-875
INTERNATIONAL: 1-816 478-8300 FAX: 1-816 478-4596 (24 HRS)

ALLIANCE PERIPHERAL SYSTEMS. 2900 S 291 HWAY. LOWER H. INDEPENDENCE MO 64057

APS Alliance Peripheral Systems

MacUser

Advertising Gallery

Your window to hot new products in the Macintosh industry. A unique section displaying new advertisers and their products. The place to turn first for this month's latest.

For special rates and details contact your local MacUser sales representative.

System 7 Compatible

LaserMerge™

If you Print, you need LaserMerge!

LaserMerge is revolutionizing the printing process by allowing you to merge graphics and text from your favorite applications at the printer, without re-feeding paper...

If you have ever copied logos, letterheads, footers, page numbers, classification marks, DRAFT/PROOF, or viewchart frames into your artwork or word processing text— just to print them, then you need *LaserMerge*...

LaserMerge can insert PICT, PostScript, or EPS images as layers in the output of your application with perfect registration! ...and you have complete control over their origin, scale, rotation, clipping, and gray level.

LaserMerge gives you continuity across multiple jobs, thumbnail imaging, master pages, time and date stamping, and smaller spool files. It can drastically reduce your print time on invoices, letterheads, logos, mailing labels and other repetitive printing tasks.

With LaserMerge, you no longer store your logos, letterheads, and other graphics in each and every piece of artwork. This saves disk space, time, and money, and produces perfect and consistent copy, in keeping with your company's image.

Call 1-800-MGT-6840 for our free brochure!
...for a limited time $95

Feature help even without System 7 balloons!

LaserMerge works with LaserWriter, other PostScript printers, and with ImageWriter II printers, on Macintosh Plus and up, and with all applications using the standard print manager. LaserMerge and the LaserMerge logo are trademarks of MindGate. List price $129.00.

MindGate Technologies, Inc.
Highway 275
Flintville, TN 37335
(615) 937-6800

CIRCLE 40 ON READER SERVICE CARD.

PowerBook Power



- **Automobile Power Adapter** - $99.95
  Charge and operate the PowerBooks in your car
- **External Battery Charger for the 100** - $149.95
  Charge your extra battery in the car or at your desk
- **Auxilliary Power Pack** - $189.95
  Increase operating life over four times



Making your portable more portable™

Lind Electronic Design
6414 Cambridge Street
Minneapolis, MN 55426
fax: (612) 927-7740
1-800-659-5956

CIRCLE 72 ON READER SERVICE CARD.

Now that you can afford a color Mac™— Where are the affordable 32 bit color paint programs?

Your search is over!

MicroFrontier, the maker of Enhance 2.0 now offers

Color It!

Nominee Macuser Editors' Choice

Color It! has advanced image processing and painting features that until now were only found in programs like:

Photoshop™
Studio 32™
Pixel Paint Professional™
Oasis™



For a price you can afford.

Color It! offers Professional Quality—at $119.95

MicroFrontier

3401 101st Street Suite E
Des Moines, IA. 50322
(515) 270-8109
(800) 388-8109

"Photoshop" is a trademark of Adobe Systems, Inc. "Pixel Paint Professional" is a trademark of SuperMac Technology. "Studio-32" is a trademark of Electronic Arts Corp. "Oasis" is a trademark of Time Arts, Inc. "Mac—Macintosh" is a trademark of Apple Computer, Inc.

CIRCLE 28 ON READER SERVICE CARD.

MARKETPLACE MacUser

MarketPlace

The cost-effective buying arena that provides sellers of Macintosh compatible products 3 advertising options: Premier, Classified and BusinessCard to meet their specific advertising goals, reaching 335,000 Macintosh Business Buyers. All sections are set up by product category and offer reader service.

Premier

The four-color showcase that spotlights leading-edge products and services.

346-352

Classified

Flexible-format display advertising that offers diverse sizes plus two and three color options. Section meets dynamic advertising needs for all Macintosh products and services.

353-369

Business Card

A forum for innovative, unique, low-cost and hard-to-find Macintosh hardware, software, and miscellaneous products and services.

370-371

Product Categories

	Premier	Classified	BusinessCard
Hardware			
Accelerator Boards	346	353	
Bar Code		353	
CD-Rom			
Communications	346		
Computer Systems	346	353	370
Data Acquisition			
Data Recovery Services	347	356	370
Disk Drives	347	356	
Diskettes		356	
General		356	
Input Devices			
Insurance		358	370
Memory Upgrades		358	
Monitors			
Networking			
Peripherals		361	
Printers		363	370
Scanners			370
Security		363	
Used Equipment			
Software			
Accounting		363	370
Bar Code	348	363	
Business	348	363	370
Business Time Management			
CAD/CAM	349		
CD-Rom	349	364	
Database Publishing			
Desktop Publishing	350		
Educational		365	370
Emulation		365	
Engineering		365	
Entertainment/Games	350	365	370
Financial			370
Fonts		366	371
Foreign Languages	350		
Genealogy		366	
General			
Government			371
Graphics		366	
Health			371
Language Tools		366	
Legal			
Lottery		367	
Mail Order			
Medical/Dental			
Music/MIDI	350	367	
Networking		367	
Programming Tools	350		
Public Domain		367	
Real Estate		367	
Recreation	298		371
Religion	351	367	
Sales Marketing			
Scientific			
Security			
Shareware		367	
Stackware		368	
Statistics		368	
Taxes			
Utilities	351		371
Word Processing			
Miscellaneous			
Accessories	352	368	
Books/Catalogues			
Business Opportunities			
Data Conversion Services		368	
Desktop Publishing Services		368	
Diskette Copy Services			
Furniture			
Insurance			
Mailing Lists			
Novelties			
Services			
Slide Imaging Services	352	368	
Supplies	352	369	371

Ad Sales Information

One Park Avenue, New York, NY 10016
(212) 503-5115 or (800) 825-4ADS

Account Representatives

Sherrie M. Graddic (212) 503-5152
Business Card Representative

Lawrence A. Johnson (212) 503-5138
AL, AR, IA, IL, IN, KS, KY, LA, MI, MO, MS, NE, OH, OK, TN, TX, WI, CANADA, OVERSEAS

Thomas P. Koletas (212) 503-5136
CT, DC, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV

Dennis M. Leavey (212) 503-5111
AK, CA (209, 408, 415, 510 707, 800, 805, 916), HI, ID, MN, MT, ND, NV, OR, SD, WA, WY

Laura A. Salerno (212) 503-5140
AZ, CA (213, 310, 619, 714, 818), CO, NM, UT

Classified Advertising Staff

Paul Stafford
Vice President, Classified Advertising

Vickie Pinsky
Classified Advertising Director

Anne R. Brockinton
Production Director

Paul A. Fusco
Sales Manager

Chris Meyer
Production Coordinator

Nepreil Foster
Advertising Coordinator

PREMIER



More Than Just An Accelerator.

The Aztech Merida upgrade kit for the Macintosh Plus and SE enables you to upgrade to a modular system with large screen display and accelerator for just $1,345.

If you do not have a Macintosh to upgrade we offer the 25Mhz 030 Merida Workstation with Two Page Display, 8MB of RAM and optional internal hard disk for $2,595.

Call for information about our Emprean Tower Enclosure and slot expanders for the Macintosh LC and II series computers.

Aztech Micro Solutions, Inc.
130 McCormick #103, Costa Mesa, CA 92626
(800) 524-3500

CIRCLE 250 ON READER SERVICE CARD

Install Your Large Hard Drive with a Click of Your Mouse.



Installation of virtually any SCSI drive is easy and only minutes away with Ontrack's **DiskManager Mac®** hard disk installation utility for Macintosh.

- Create customized partitions.
- Complete with utilities to manage and secure your data.
- Available with or without a hardware installation kit.

Completely System 7 Compatible

1-800-752-1333
International: 612-937-1107 • Fax: 612-937-5815
6321 Bury Drive, Eden Prairie, MN 55346

Ontrack COMPUTER SYSTEMS

Fax Modem

9624 PF
For All Mac Computers

Turns your computer into a Fax machine instantly!

- 9600 bps SEND/RECEIVE GROUP 3 FAX
- 2400 bps DATA MODEM
- HAYES COMPATIBLE
- 5 YEAR WARRANTY
- MADE IN THE USA

NOW **$169.00**



$3X.00

CABLE & SOFTWARE INCLUDED

Dealer & Dist. Inquiries Welcome

MET
MICRO ELECTRONIC TECHNOLOGIES, INC.
TEL: 1-800-766-7466
FAX: 508-435-6481

CIRCLE 251 ON READER SERVICE CARD

1-800-788-5818

THE 10 BEST REASONS TO SHOP UCOMPUTE!

1. 12 MONTHS FREE ON-SITE SERVICE**
2. FREE ON-SITE INSTALLATION*
3. FREE SYSTEM 7.0 TRAINING VIDEO*
4. 30 DAY MONEY BACK GUARANTEE
5. NOT A MAIL ORDER COMPANY (Over 4500 Sales Reps Nationwide)
6. EXCELLENT PRICING
7. OVER 80,000 DIFFERENT PRODUCTS
8. FREE SHAREWARE SOFTWARE
9. ORIGINAL APPLE SERIAL NUMBERS
10. AUTHORIZED TRAINING & SERVICE

*With Purchase of Any System
**Provided by UCompute Onsite Service

PowerBook 100 (New)	$1995
Mac LC 2/40 (New)	$1599
Mac IISI 3/40 (New)	$2199
Mac Quadra 700 4/105 (New) w 14" Monitor & Ext. Kybd	$5242
Mac IICI 5/105 (New)	$3300
Mac Quadra 900 4/160 (New)	$5779
LaserWriter IIG	$3575
Radius Color Pivot	$1309
QMS PS410	$1629
Abaton	
LaserScript LX 2.5 meg	$1457
Scan 300 Color w/Photoshop	$1159
Emac Sihlouette Trackball	$75
MacAcademy Videos	$29.95
HP Deskwriter C	$739
PLI Infinity 88	$799
Bernoulli 90	$850
Seiko 14" 24bit Bundle	$969
Toshiba 17" Color Monitor	$1529

Hours: M-F 9 - 9 EST

2 WEEK RENTAL
MacAcademy Training Videos
as low as $6.00 each

We Accept Checks, Visa, MC, Amex & Discover
5% Surcharge for Amex Only!

We Offer A Complete Selection of New & Used Hardware, Software & Peripherals for:

MAC • NEXT • IBM

Just a few of the Manufacturers we are Authorized to carry:

Printware	Nikon	GCC
NeXT	HP	Radius
TI	Maxtor	NEC
Microtek	QMS	Sigma
Sharp	Sony	Seiko
Magnavox	Agfa	ATTO
Ehman	Supermac	Applied Eng.
RasterOps	Kodak	Abaton
Cannon	Outbound	Mobius

COMPUTE

COMPUTER SALES, SERVICE, LEARNING & DESIGN CENTER
316 EAST PINE STREET • ORLANDO, FLORIDA 32801
PHONE (407) 426-8610 • FAX (407) 426-8810

CIRCLE 253 ON READER SERVICE CARD

PREMIER

For That Critical Moment When Only the Best Will Do



Call Ontrack Data Recovery

- **FAST** Turn Around.
- **95% SUCCESS** Rate.
- **PROFESSIONAL** Clean Room.
- **EXPERTISE** in Macintosh, SyQuest, and removable media plus Novell, DOS, OS/2, Unix, Xenix, Bernoulli, Sun Banyan Vines and more!

1-800-872-2599
International: 612-937-5161 • Fax: 612-937-5750
6321 Bury Drive, Eden Prairie, MN 55346

Ontrack DATA RECOVERY

TMS Peripherals

SERVICE • SUPPORT • SATISFACTION

It's here! *Shadow* ☆☆☆ The full-featured portable from TMS!

In your briefcase or its own custom carrying case—this is the full-featured portable drive that goes anywhere you go! Power it via the Mac floppy port or its external power supply. This ultra quiet, fan-free drive uses an Apple-like standard lock system to protect your data, can be daisy chained via a pass-through SCSI cable and has external SCSI ID selection. It also ships with DiskWriter™, TMS' universal formatting software and 26+ Mbs of shareware & freeware. See external prices below or *call today about the TMS "Shadow To Go" upgrade policy!*

TMS PRO HARD DRIVES ☆

Each hard disk carries TMS' 2 Year Full Warranty

		Int.	Ext.			Int.	Ext.
Pro 52 LPS	11ms	$239	$319	**Pro 210**	10ms	$699	$779
Pro 105 LPS	11ms	369	449	**Pro 425**	10ms	1329	1399
Pro 170	10ms	599	689				

Authorized Quantum Dealer

TMS REMOVABLE SUBSYSTEMS SyQuest

Each removable hard disk carries TMS' 2 Year Full Warranty

TMS Pro R45 20ms $479 includes 1 cartridge
TMS Pro R90 20ms $729 includes 1 cartridge
Extra cartridges $68 & $120

TMS TAPE BACKUP SYSTEMS TEAC

Each tape backup system carries TMS' 1 Year Full Warranty

TMS Pro T155 & 1 tape $499 • extra tapes $20
RETROSPECT by Dantz—$100 w/ the purchase of tape drive

PRO SERIES FEATURES: International Auto-Switching Power Supply • Selectable Pushbutton SCSI ID Switch • VCA Mechanism • 27+ Mbs Shareware • 2 SCSI Ports • 2 AC Jacks • Shielded Power Supply • ALL Necessary Hardware & Manuals • *TOLL-FREE TECHNICAL SUPPORT*

30 Day Money Back Performance Guarantee

FEDERAL EXPRESS

TMS Peripherals—great products, prices & service!
Please, call about TMS' Price Match Policy!
CODs & POs accepted—No Surcharge
8am–8pm (EST) Monday–Friday
9am–6pm (EST) Saturday
**All prices subject to change.*

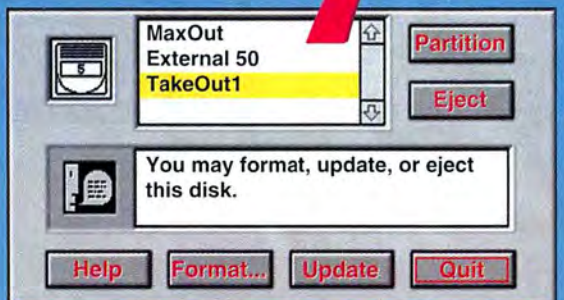
800 ASK 4TMS
2 7 5 4 8 6 7

1120 Holland Drive, Suite 16 • Boca Raton FL 33487 • 407.998.9960 • Fax: 407.998.9983

CIRCLE 256 ON READER SERVICE CARD

THE simply AFFORDABLE WAY TO STANDARDIZE YOUR SYSTEM

Drive 7



- Replaces Multiple Formatters
- Choice of Icons with Optional SCSI ID
- Updates Apple & Third Party Drives
- Virtual Memory on Syquest Drives

Casa Blanca Works, Inc. 415.461.2227 • FAX 415.461.2249
148 Bon Air Center • Greenbrae, CA 94904

CIRCLE 255 ON READER SERVICE CARD

TMS Peripherals

SERVICE • SUPPORT • SATISFACTION

NEW

TURBOCHARGE your Macintosh with DAYSTAR 100% compatible PowerCache cards. Boost the speed of your SE/30, LC, IIsi, IIci, II, IIx or IIcx to that of a IIfx at less than half the cost of Apple upgrades!

33 Mhz PowerCache $629 • w/ FPU $819
For use with SE/30, LC, II, IIx, IIcx

40 Mhz PowerCache $819 • w/ FPU $1009 ☆
For use with SE/30, LC, IIsi, IIci, II, IIx, IIcx

50 Mhz PowerCache $1259 • w/ FPU $1509
For use with SE/30, LC, IIsi, IIci, II, IIx, IIcx

FastCache IIci $239 or IIsi $259

TMS IIci 64K FastCache Card $149 ☆

Æ QuickSilver $219 • w/ 68882-20MHz FPU $279

SIMMs 1Mb 80ns $38 • 4Mb 80ns $141, Classic 3 Mb Mem. Upgrade, $139

FEDERAL EXPRESS

TMS Peripherals—great products, prices & service!
Please call about TMS' Price Match Policy!
CODs & POs accepted—No Surcharge.
8am–8pm (EST) Monday–Friday
9am–6pm (EST) Saturday
**All prices subject to change.*

800 ASK 4TMS
2 7 5 4 8 6 7

1120 Holland Drive, Suite 16 • Boca Raton FL 33487 • 407.998.9960 • Fax: 407.998.9983

CIRCLE 257 ON READER SERVICE CARD

PREMIER

Extra Storage at an Extra Low Price!

QuicKor 40

- Genuine Apple Mechanism
- 40 MB Low Power Mechanism, 1/3 Height
- HD Set Up and Backup Software
- Zero Footprint
- Cables

JUST $288 Complete!



Running out of space on your hard disk? The QuicKor 40 gives you Apple quality for less than a no name clone. Call toll free today... The QuicKor The Better!

QuicKfax: (503) 286-8710

800 338-9951

QuicKor Card

CIRCLE 258 ON READER SERVICE CARD

Bar Code Fonts



"...the people at Bear Rock are flat-out experts on the topic of bar codes and produce products of exceptionally high quality."
– Personal Publishing Magazine 6/91

- Code 39 • UPC/EAN • ISBN • Int 2 of 5 • POSTNET
- Compatible with almost any application
- Bar code readers starting at $395

PrintBar Version 3 Bar Code Fonts ★★★★½ "This is the best product of its kind, and it's reasonably priced too." MacUser, 8/90

Sales **1-800-BEAROCK**

(916) 622-4840

FAX (916) 622-4775

Bear Rock TECHNOLOGIES

6069 Enterprise Drive • Diamond Springs, CA 95619

Frazzzzled by HR Record Keeping?

Abra 2000 for Employees

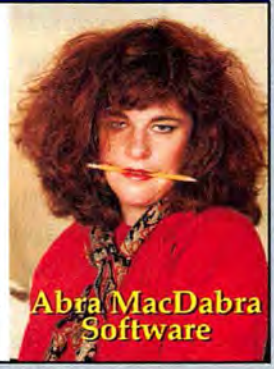
- For 10 to 10,000 employees
- Top selling HR system, Mac & PC
- Over 100 Reports + Report Writer
- Starting at $595 for upto 75 empl.

AbraTrak for Applicants

- Find the right candidate - Fast
- Auto letter generator
- 80+ reports, incl. EEO & Costs
- From $995 for Single User

Real Working Demo and Manual $25 / product

CALL 408-737-9454



CIRCLE 261 ON READER SERVICE CARD

'MacBARCODA'

for Bar Codes that don't fail

'LABEL DESIGNER'

The ultimate in label printing

Two great time and cost savers. Both technically outstanding and easy to use

MacBARCODA

- Eliminates film masters
- More precise adjustment than fonts.
- Easier to use than fonts.
- Producing bar codes in EPSF.
- Supports UPC, Code 39, ITF, ISSN, ISBN and EAN.
- Compatible with popular page design packages.
- Also available with color.
- A suite of D.A.'s.

Prices from $349.



LABEL DESIGNER

- Used daily to produce all types of labels on a PostScript® printer.

For $245 look what you get

- Total flexibility - any label size or sheet layout.
- Text, lines, PICT & EPSF graphics and bar codes.
- Incrementing bar codes and numbers.
- Imports data easily from your word processor or database via ASCII text files.
- Code 39 and Postnet included. Also with Code 128, UPC, ITF, ISBN & EAN options.
- *Ideal for mailing labels, BRC's, product/carton labels, asset/file tracking labels.*



ComputaLabel

28 Green Street, Newbury, MA 01951
Tel 800-289-0993 Fax 508-462-9198

CIRCLE 259 ON READER SERVICE CARD

PLANMaker™ Powerful Business Plan Software

- **Self-contained Business Plan software for the Mac**
- **Expert Narrative describes your business at its best**
- **Sophisticated Financial Forecasts build credibility**
- **Create your Business Plan and/or earn excellent profits creating Business Plans for other entrepreneurs as a Business Plan Consultant**

Launching or expanding a business can mean exciting profits. Bankers and investors now require a professional Business Plan. PLANMaker takes you step by step, page by page, from Executive Summary through Financial Forecasts. Easy entry boxes and an extended selection of narrative make customizing easy. Three complete and diverse business plans in memory; import part or all, then edit. All calculations and formatting are automatic with PLANMaker.



Self supporting, requires no other software
$129 + $3 s/h (U.S.)
via *AIRBORNE* + $6.25 s/h (U.S.)

MAC System 6.0.5 or later, 2 MBs RAM, w/Hard Drive, VISA/MASTERCARD/AmEx include number, expir. date & sig

Call/write for Brochure or order 1-800 955 3337

PLANMaker
1920 S Broadway Dept 6
St. Louis, MO 63104
VISA/MasterCard/AmEx
Orders: 1 800 955 3337
FAX 1-314 421 0668
Worldwide: 314 421 0670

CIRCLE 262 ON READER SERVICE CARD

HIGH-PERFORMANCE GOOD LOOKS!

That's the start-finish combination you buy with Premier, the dynamite section where your enhanced image fuels top response from 335,000 Macintosh Business Buyers every month!

MacUser Premier

800-825-4237

Do your Electronic Design on a Macintosh Computer!



Douglas CAD/CAM is a family of products for the design and manufacturing of printed circuit boards. Running on the Apple Macintosh, the entire line is quick and easy to learn. The software together with the high resolution and speed of the Macintosh provides a quality engineering work station that is very affordable and easy to use.

DesignWorks is used for schematic entry, extracting net-list and parts list data, creating and editing custom parts and display of digital circuit simulation. DesignWorks may be used on its own or with Professional Layout and AutoRouter for full integration of the Professional System.

Professional Layout, the board layout and editing package, includes parts placement for component positioning. The program may be used on its own, or with DesignWorks and AutoRouter for full integration of the Professional System.

AutoRouter, used with DesignWorks and Professional Layout, allows full use of the Professional System by automatically completing circuit connections. The net-list from DesignWorks, and the parts placement from Professional Layout provide the necessary information for routing.

The Professional System consists of three programs: DesignWorks (schematic capture), Professional Layout, and AutoRouter. The system takes full advantage of the Macintosh in addition to multilayer and SMT capabilities. A fully integrated, powerful engineering tool, the Professional System will take you from the initial schematic to the final routed circuit board.

Output from the Professional system can be sent directly to dot-matrix and LaserWriter printers and all popular pen plotters. Software is also available for generating Gerber files for photoplotting and Excellon files for drilling.

Board Manufacturing and photoplotting are also available. If you wish to use the services that Douglas Electronics provides, you may simply connect a modem to your Macintosh to get firm price quotes for boards then transmit your files for board manufacturing or photoplotting.

DOUGLAS ELECTRONICS INC.
2777 Alvarado St. - San Leandro, CA 94577
(510) 483-8770 FAX (510) 483-6453

Macintosh, Excellon and Gerber are trademarks of Apple Computer, Inc., Excellon Automation, and Gerber Scientific Corp respectively.

CIRCLE 264 ON READER SERVICE CARD

High Yield CDs.

GIGA-ROM Macintosh Software Archives — CD7 Macintosh Software Library — MACADEMIC All education software

Quantum Leap delivers great value.

Name your flavor. These discs are large libraries of great Macintosh shareware and public domain programs. Everything from artworks and music to utilities, games, fonts, …the works. Plus the latest System 7 software for the newest Macintosh computers, and plenty of new System 7 compatible shareware and PD programs.

Giga-ROM™ 1.7 gigabytes of archived shareware and PD programs.
CD7™ Two discs with over a billion bytes of programs and resources.
Macademic™ The All-Educational Library for students and teachers.
Mega-ROM™ The original, most-affordable Mac shareware CD.

Quantum Leap
TECHNOLOGIES
Setting new standards in CD Software

Call toll free 1-800-762-2877 for the dealer nearest you.
Phone: (305) 885-9985 • Fax: (305) 885-9986

PREMIER

CIRCLE 266 ON READER SERVICE CARD

Blueprint: Professional CAD



Under $300

If you're struggling to make technical drawings with programs made for graphic illustrators, you need the right tool! J.N. Worsham of Florida used Blueprint to design this fire engine.

Blueprint provides unprecedented control over scale, measurement, angles and joins. Create Bezier or cubic splines. New tools include ordinate and radial dimensioning. Work with an unlimited number of layers, and snap precisely to any point using Graphsoft's Smartcursor™.

Now you can have professional CAD no matter what Mac you own. Blueprint Supports the Mac Classic and new 64 dpi monitors. Converting files? Blueprint comes with a built-in DXF translator.

Call today and ask for the Blueprint Special: free overnight UPS delivery and a Smart Mouse t-shirt for only $295. Thirty-day no-hassle money-back guarantee. Graphsoft: for five years we've been the leader in Mac CAD.

Graphsoft

8370 Court Ave., Suite 101 • Ellicott City, MD 21043
(410) 461-9488 • FAX (410) 461-9345

CIRCLE 265 ON READER SERVICE CARD

Jackpot.



The Treasure Chest of Utilities™

Why wait for overnight delivery when all the best utilities for your Macintosh are now on a CDROM?

The new Treasure Chest Of Utilities™ from Quantum Leap offers you a revolutionary, simple way to evaluate and purchase your favorite programs on demand. Instantly. What could be easier?

The Treasure Chest Software Series is your key to unlocking a wealth of great Macintosh software.

Quantum Leap
TECHNOLOGIES
Setting new standards in CD Software

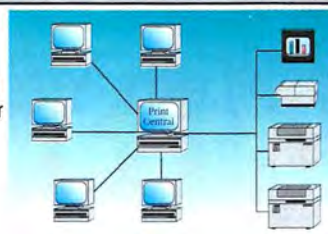
Call toll free 1-800-762-2877 for the dealer nearest you.
Phone: (305) 885-9985 • Fax: (305) 885-9986

CIRCLE 267 ON READER SERVICE CARD

PREMIER

Now, Print Central 2.0!

What the Apple Print Server wanted to be!



Never wait for a printer, never make a printer wait... Running on any Macintosh, Print Central publishes itself as one or several Chooser-level printer(s) over your AppleTalk network. It receives jobs (any application, including PageMaker) from multiple workstations and spools them to one or several PostScript printers, all simultaneously! Complete queue control and auditing are standard with Print Central! ***Print Central 2.0*** adds ***remote*** control and status from any Mac on the network, as well as printer hiding and increased security.

Compumation

820 N. University Dr., State College, Pa. 16803 (814) 238-2120 Fax 234-6864

CIRCLE 268 ON READER SERVICE CARD

MUSIC PRODUCTS FOR THE MACINTOSH, IT'S WHAT WE DO! Expert advice before the sale, full Tech support after. From basic instructional software, like our own Compose Yourself; to the intricacies of Hard Disk recording, why not get it right the first time. Authorized dealer for Apple, Coda, Digidesign, Dr.T's, Mark of the Unicorn, Opcode, Panasonic, Roland and much more. Real answers for real tasks. Call the experts! at 800-MAC-BEAT, or 505-473-4929, fax: 505-473-4647.

MacBEAT™
1314 Rufina Circle A4
Santa Fe NM 87501

CIRCLE 272 ON READER SERVICE CARD

TScript PostScript® Language Interpreter and Utilities



- Outputs PostScript® documents to Apple (incl. StyleWriter, Laser LS), HP, GCC, Canon, Epson, Mitsubishi and others
- PostScript® to TIFF converter, variable resolution up to 2000 dpi color
- Supports all PostScript® fonts
- Previews PostScript® files
- Chooser level & AppleTalk compatible
- System 7.0 and TrueType compatible

T-Script $145, Basic $85, Deluxe $495

TeleTypesetting
474 Comm. Ave., Boston, MA 02215
(617) 734-9700 Fax: (617) 734-3974

New v3.0

CIRCLE 269 ON READER SERVICE CARD

Easy4D™ *Simply the best 4th DIMENSION development environment available.*

Using 4th DIMENSION? Start with *Easy4D*. It gives you everything you need to create polished, professional databases in the shortest time. Features include:

- Fully functional layout templates
- Built–in mail merge
- On–line customizable help
- Codeless Custom Reports
- 30-day money–back guarantee
- Extensive documentation

"Natural Intelligence makes 4D development easy."
—MacWeek

Ask about our free demo and trade–in policy for competitors' products!

Natural Intelligence, Inc.
2067 Massachusettes Ave., Cambridge, MA 02140
800-999-4649•617-876-4876•Fax 617-492-7425

CIRCLE 273 ON READER SERVICE CARD

LETTER DROP

The original animated crossword game

Make Words Out Of Falling Letters
THREE games in one
Built-in Dictionary
Race the clock
MULTILINGUAL

Educational Tool
Enter, edit spelling lists
Improve Language Skills
Children's game - match the letters

1-800-551-6061

Human Interactive Products, Inc.
60 Thoreau Street - Suite 253
Concord, MA 01742

© 1990

CIRCLE 270 ON READER SERVICE CARD

The HyperGlot Software Company

The Leader in Foreign Language Software for the Macintosh in Spanish, French, German, English, Russian, Italian, Japanese, and Chinese featuring extensive digitized sound or CD audio!



Call or write for your free catalog today! 800-726-5087
P.O. Box 10746, Knoxville, TN 37939-0746

CIRCLE 271 ON READER SERVICE CARD

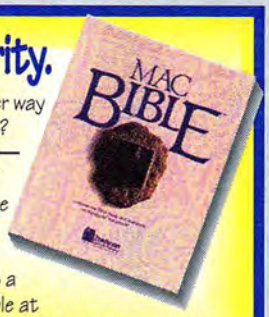
WHERE THE LOOKING'S GOOD!

Premier's cooking with proven results for advertisers who've decked out their messages in affordable full color. Place your ad where image wins results—with 335,000 Macintosh Business Buyers!

MacUser Premier

800-825-4237

Bible Study Superiority. Only $97. Looking for a better way to study the Bible?



"...macBible is the superior product — it's fast, flexible (and) easy to use."* It's the perfect choice for fast, complete Bible Study. For a limited time, get the New International Version for **25% off** the $129 retail price. Plus **macBible** has a **60-day money-back guarantee.** Available at Christian bookstores everywhere. **1-800-727-7759**

Zondervan Publishing House
Software and Electronic Products

Offer expires 2/28/92

*MacWorld, Dec. '91

CIRCLE 275 ON READER SERVICE CARD

Bible Study made Fast, Easy and Fun!

HyperBible: a comprehensive Bible study system based on the Thompson Chain-Reference Bible comes complete with maps, word and topic searches, pronunciation, and much more for $199 (NIV or KJV)!

Gems of the Word: brings the Bible to your daily life with a 2000 verse topical index and a verse of the day for $39.95 (NIV or KJV)!

Begat: takes the ho-hum out of Bible genealogies for just $30.

Mention MacUser when you purchase HyperBible and get a free Gems or Begat!

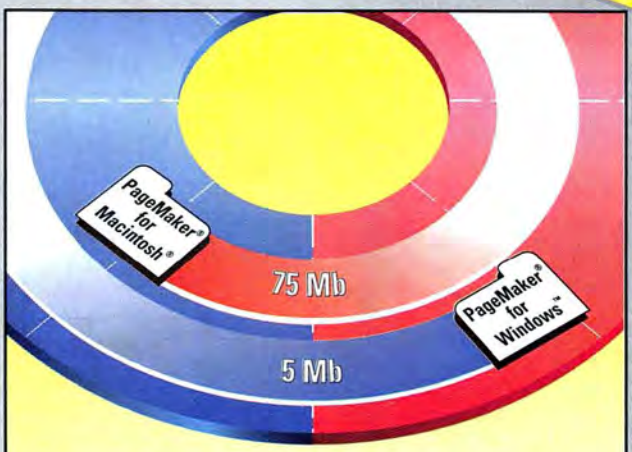
Call toll free to order now! Visa or MC!

Beacon TECHNOLOGY, INC.

1-800-777-1841

Beacon Technology, Inc. PO Box 49788-U Col. Spgs., CO 80949

CIRCLE 276 ON READER SERVICE CARD



Share Large Mac and DOS Files on the Same Disk Drive or Cartridge!

FormatterFive™ partitioning and file transfer utility gives you the power to:

- Move *large* files from PC to Mac and back easily
- Mount DOS volumes on your Mac desktop
- Read DOS formatted cartridges on your Mac
- Create Mac *and* DOS partitions on the same drive

Supports most popular hard drives, optical and removable cartridge drives: **$195.**

Call (206) 487-0122
FAX (206) 487-0467

SOFTWARE ARCHITECTS INC.

CIRCLE 278 ON READER SERVICE CARD

PREMIER

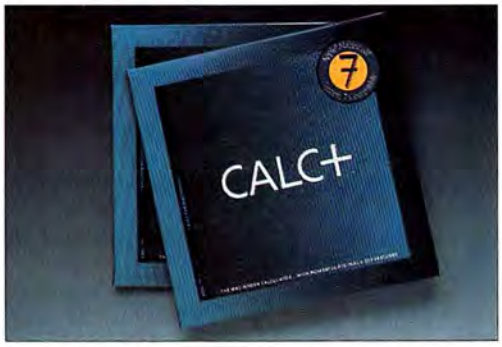
SEEING IS BELIEVING!

Your four-color Premier ad gets out more than the word to 335,000 Macintosh Business Buyers. It shows them—with full-color depth and dimension—your commitment to long-term business...your confidence in your products. Seeing is believing! Call today for details on what a difference you can make with an affordable display in Premier!

MacUser Premier

800-825-4237

"CALC+ is ++++"



Since we started shipping Calc+ we've received lots of great comments, but the one above says it all. Thanks Dave.

Calc+ is a better, more productive calculator for your Mac, with professional decimal and desktop publishing features not found in the standard Mac calculator.

Its got a LARGE DISPLAY that you can resize, scroll and edit — even change the display font and size, PAPER TAPE PRINTOUT for backup and audit trails, % KEY, CLEAR ENTRY KEY, MINIMIZE BUTTON and more.

But Calc+ is really 2 calculators in one, because it can also do DESKTOP PUBLISHING CALCULATIONS in inches, centimeters and picas with INSTANT CONVERSIONS between any of these units.

So pick up a copy of Calc+ today. We'd like to get your comments.

Available from catalogs and dealers everywhere. Suggested retail $79.

Abbott Systems Inc. All our products come with free customer support. **1-800-552-9157** or **914-747-4201, fax 914-747-9115.**

CIRCLE 279 ON READER SERVICE CARD

PREMIER

Who's on First?

What job is printing now? Who's job will print next? Solve these common problems with The Blue Parrot.

- CDEV displays the queue for each printer.
- Eliminates confusion; avoids reprinting.
- Works with all networked printers.
- Saves time, money, and frustration.



For viewing at your printer, use Radarl™, the remote LCD display!

Casa Blanca Works, Inc. 415.461.2227 Fax 415.461.2249

CIRCLE 280 ON READER SERVICE CARD

SLIDE IMAGING

ALL MAJOR MAC & PC PACKAGES!

MANY OTHER SERVICES!

SLIDEMASTERS 214-437-0542

SLIDEMASTERS, Inc.

800/969-8228 Voice Phone

800/486-9998 Mac Modem

CIRCLE 284 ON READER SERVICE CARD

KeySkin™ Keyboard Protectors and Dust Covers

From the World's Leader in Computer Protection



Quality - Selection - Service - Fast Delivery

CompuCover Inc.
2104 Lewis Turner Blvd.
Fort Walton Beach, Fl 32547

Order Line (800) 874-6391
Service (904) 862-4448
Fax (904) 863-2200

CIRCLE 281 ON READER SERVICE CARD

QMS™

Quality Supplies & Accessories

THERMAL TRANSFER PRINTERS:
Ink Rolls, Paper, Transparencies, Thermal Head Cleaners

LASER PRINTERS:
Toner, Developer, Drums, OPC Kits

ACCESSORIES:
Paper Trays, Cables, Sheetfeeders

Overnight and 2nd day delivery available*
*Additional Charge

ORDER TOLL FREE
1-800-354-3212

CIRCLE 285 ON READER SERVICE CARD



MacFreighter
Deluxe ATA Cases
- Wholesale prices
- Same day shipping
- Best cases for shipping or airline custom cases

MacBag
Absolutely The Best bag anywhere
- Best Protection
- Best Design & Features
- Complete line
- Super NoteTotes

Linebacker 1-800-228-7042

CIRCLE 282 ON READER SERVICE CARD

GOOD LOOKS! GREAT PERFORMANCE!

That's the start-finish combination you buy with Premier, the dynamite section where your enhanced image fuels top response from 335,000 Macintosh Business Buyers every month!

MacUser Premier

800-825-4237

Try Us Free!

Slides From Your MAC

We want your business, and we'll prove it! We offer the best service available. Experts in Persuasion, Powerpoint and others, on staff to serve you. Free Federal Express shipping. Toll-free Customer Service. And if you should make a mistake, we'll reshoot your slides, free. Call today, and say "I'd like to try your service, Free."

ACCENT presentations, inc. 1-800-222-2592

12780 High Bluff Drive, Ste. 250 • San Diego, CA 92130

CLASSIFIED

MacUser MARKETPLACE

HARDWARE/ACCELERATOR BOARDS



SPEED UP YOUR MAC!

Now you can dramatically improve the speed and the performance of your Mac 512KE, Mac Plus, and Mac SE.

68030 Accelerator Upgrade Kits

- Easy to install • Speeds of 16, 25 and 33 MHz
- SIMM socket for memory expansion • Math co-processor socket • Complete kit & tools

30 Day Money Back Guarantee

Prices start at just $495 — Call ☎1-800-553-2038

Novy Systems, Inc. 1862 Fern Palm Drive, Edgewater, Florida 32141 • Fax 904-428-0765

CIRCLE 306 ON READER SERVICE CARD

FPU/PMMU

Classic II FPU	16MHz	$89
Classic II FPU	20MHz	$109
Mac LC FPU	16MHz	$89
Mac LC FPU	20MHz	$109
68882 FPU	20MHz	$74
68851 PMMU	16MHz	$109

(Mac II needs PMMU for virtual memory)

Sonnet FontCards for QMS PS &TI microLaser Printers.....call

SONNET TECHNOLOGIES, INC.
18004 Sky Park Circle, Irvine, CA 92714
714-261-2800 Fax: 714-261-2461
1-800-945-3668
Visa, MC; Gov't. /Corp./Univ. P.O.

CIRCLE 307 ON READER SERVICE CARD

BAR CODE

BAR CODE & MAGNETIC STRIPE READERS FOR MACINTOSH PLUS, SE & II

Connects on keyboard or ADB
Requires no additional program or port
Does not affect keyboard or mouse
Industrial quality, heavy-duty units
Also available
- SmartCard encoder reader
- Magnetic encoder
- Code & 39 UPC Printing Software
- Portable Bar Code Reader

TPS Electronics
4047 Transport Street
Palo Alto, CA 94303
415-856-6833 1-800-526-5920
Telex: (Graphnet) 371 9097
FAX: 415-856-3843

CIRCLE 308 ON READER SERVICE CARD

BAR CODE

BAR CODE READERS

- **Top rated by independent review!**
- Complete with steel wand — **$399**
- 64K Portable with wand — **$799**

"The WDP Reader is highly reliable and easy to use." Brett Fifield, Bitstream Inc.

- For all Macintosh models
- Attaches as second keyboard
- 2of5, UPC/EAN, 128, MSI, Code 39
- Magstripe, laser, or wand input
- **Same day shipping, Free UPS Blue**
- **2 year warranty**
- **30 day money back guarantee**

800-345-4220
OR 408-458-9938

WORTHINGTON DATA SOLUTIONS 417 Ingalls Street Santa Cruz, CA 95060

Portable Bar Code Readers



TimeWand I DuraWand TimeWand II

Data collection is fast, easy, and extremely accurate when using Videx portable bar code readers. Cordless operation, compact size and light weight allow you to take the Wands wherever the work needs to be done. **Call Videx today for your free information kit, 503-758-0521.** Prices starting at

Videx

TimeWand I	$248
DuraWand	$495
TimeWand II	$698

1105 NE Circle Blvd., Corvallis, OR 97330-4255
503-758-0521 • FAX 503-752-3285
TimeWand and Videx are registered trademarks of Videx, Inc.
DuraWand is a trademark of Videx, Inc.

CIRCLE 309 ON READER SERVICE CARD

MacUser Marketplace
To place your ad call
(212) 503-5115
or **(800) 825-4ADS**

COMPUTER SYSTEMS

data link resources

Laser printers Modems Optricals Graphic tablets
Lowest prices on everything Macintosh!

EVERY THING Macintosh

Classic-2/40	$1,175.00
IISi-3/40	$2,299.00
IICi-5/105	$3,399.00
IIFx-8/105	$4,499.00

⊕ Classic II PowerBook Quadra
Call for current prices

(800) 622-5265
(512) 323-0040
(512) 323-5465 FAX

Mastercard/Visa Accepted

Authorized dealer for Sony/Rasterops/Radius/Microtek/QMS
4525 Avenue-H, Suite: A, Austin, Texas 78751, USA
2% Discount with this ad!

CIRCLE 310 ON READER SERVICE CARD

COMPUTER SYSTEMS

Computer Design & Graphic Systems™

"Only Graphic Systems by the Graphic Specialists"

FREE SHIPPING National Service Network*

CALL FOR NEW MAC PRICES

Macintosh si 3/40	$2099
Macintosh ci 5MB	$2799
Macintosh ci 5/120	$3280
Macintosh ci 8/210	$3649
Macintosh Quadra 700	$4199
Macintosh Quadra 900	$5199
PowerBook 100	$1999
Macintosh Classic II	$1599

PRINTERS

QMS PS410	$1649
QMS PS815	$3497
NewGen PS400P	$2100
NewGen PS840e	$3695
GCC BLP Elite	LOWEST
GCC PLP II	LOWEST
Abaton Laserscript LX	$1499
Microtek Truelaser	$1399

*call for details

CDG • SPECIAL $399 COMPLETE SYQUEST 44

Celebration BIG SAVINGS on all RasterOps

800▲741▼6227
Support.....813▲278▼4964
Fax.....813▲278▼5161
1436-1 Park Shore Center • Ft. Myers, Fl. 33901

Over 2600 products for the serious Graphics User

SUPERMAC RasterOps QMS radius

PRINTERS	SCANNERS	MONITORS	SOFTWARE
NEC colormate..$4392	Abaton 300GS...$889	E-Machines T16.....$1595	Quark 3.0.....$479
Seiko color.....$4499	Abaton color.....$1197	E-Machines EX 24bit..$559	Pagemaker.....$469
NEC Silent 90....$1549	Microtek 600zs.$1349	SuperMac 19" color..$1599	Illustrator 3.0...$359
LasermasterKX...$5699	UMAX UC630...$1399	Ikegami 20" Trin.....$1949	Freehand 3.0..$375
High Res. Toner refill...$49	Howtek High Res.	Seiko 1445 Trinitron....$579	Much Much More!

NEWGEN GCC TECHNOLOGIES LM LASERMASTER E-MACHINES

CIRCLE 311 ON READER SERVICE CARD

#1 Best Mac Buys

When it comes to used Mac's, we're the best. As the Nation's largest buying force, we stock over $1 million in used Mac's, unmatched anywhere and at the lowest prices around. When we say refurbished, that's exactly what we mean, not wipe and send. Our quality control department assures you the best machine available for the money—or your money back—*guaranteed.*

For Free Catalog Call Anytime
1-800-821-3221
Box 4059—Logan, UT 84321, Fax: 801/755-3311

Sun Remarketing, Inc.

CIRCLE 312 ON READER SERVICE CARD

MacBYTE

22775 Pacific Coast Hwy, Malibu, CA 90265

Buy • Sell • Trade Macintosh Computers

Cash For Your Mac or Peripheral
Low & High End Custom Setups
Preowned Macs with Warranty
FAX 213-317-1583

800-432-BYTE
OPEN MON. - SAT.

CIRCLE 313 ON READER SERVICE CARD

CLASSIFIED

COMPUTER SYSTEMS

You Want

You want Macs, with the best Mac peripherals, or Mac logic board upgrades. And *you want low prices.*



You'll Get

You'll get Macs, bench-tested and double-boxed. Plus expert assistance, warranty support, *and rock-bottom prices!*

Fax: 305-321-0905
Int'l: 305-321-0904

Mac•In•Stock®
800-944-MACS

©1991 Hi-Rel Marketing, Inc. dba Mac•In•Stock, Ft. Lauderdale FL

• VISA • MasterCard • American Express • International and dealer inquiries welcome

CIRCLE 317 ON READER SERVICE CARD

WANTED: USED MAC's

WE BUY YOUR USED MAC EQUIPMENT FOR TOP DOLLAR, CASH! WE SELL REFURBISHED MAC's AT DISCOUNT! CALL FOR QUOTE. **RENTEX INC.** (800) 545-2313, (617) 423-5567

CIRCLE 318 ON READER SERVICE CARD

EXSEL DIRECT
1-800-624-2001
In NY: 716-272-8770
Refurbished Macs!

MAC 512K	$ 299
Mac Plus	$ 549
Mac SE Dual Floppy	899
Mac SE/20	999
Mac SE/30 40MB	1999
Mac II 1/40, 4/40	1999/2199
MAC II CX 1/40, 8/40	2599/2799
MAC II ci 1/40	3399
MAC IIGS	545
MAC Portable 40MB	2199
Imagewriter I/II	229/299
Imagewriter LQ	399
Laser Writer/Plus	1199/1399
Laser Writer IINT/NTX	2645/2995
Radius Monitors, Memory, Parts	CALL

EXSEL INC
THE ALTERNATIVE SOURCE FOR THE FUTURE
2200 Brighton-Henrietta Townline Rd.
Rochester, NY 14623

All units refurbished with 90-Day Warranty. VISA, MasterCard, prepayment, C.O.D. certified accepted. Prices Subject to Change. We buy MAC's

WE BUY MAC's!
Top Dollar Paid.
Call for a Quote

CIRCLE 315 ON READER SERVICE CARD

1-800-334-KIWI

Mac Classic 2/40mb	$1149
Classic II 2/40mb	$1549
Classic II 4/105mb	$1849
Mac LC 2/40mb with 14" color monitor	$2099
Mac LC 4/105mb with 14" color monitor	$2399
Mac PowerBooks	$Call
Mac IIsi 3/40mb	$Call
Mac IIsi 5/105mb	$Call
Mac IIci 5/105mb	$Call
Mac Quadra	$Call
H.P. Deskwriter	$450
H.P. Deskwriter C	$750
Personal Laser LS	$899
Personal Laser NT	$1749

All items new. 1 year warranty.
Most items in stock today.
Visa & Mastercard No Surcharge.
C.O.D. orders accepted.

KIWI COMPUTERS
P.O. Box 67381
Los Angeles CA 90067
US & Canada (800)334-5494
In California (213)553-4507
Fax (213)286-9667
Mon-Fri 8.30am-4.30pm PST

CIRCLE 316 ON READER SERVICE CARD

LOWEST PRICES HERE



Microtek 600 ZS $1349

SYSTEMS	Price
Mac LC 2/40	1720
Mac IIfx - 5 meg	4179
Mac IIci - 5 meg	**2950**
Mac IIci - 5/105 (Quantum)	**3359**
Mac IIsi - 3/40	2625
Mac Portable 2/40	2650
Mac Portable 4/40	2880
Extended Keyboard	175
Quadra System	Call
Power books	Call

MONITORS	
IKegami	
CT20 Color Trinitron & CT 2010 Mono	1845/825
CT20 w/8 Bit Card	2399
CT20 w/24 Bit Card	3049
Radius	
19" Color Display	2950
21" Color Display	3125
Color Pivot	**1249**
Color Pivot Interface II, LC, IIsi, SE, SE/30	**515**
Full Page System for Classic	825
Full Page System for LC	885
Full Page System for SE	825
Pivot Display for Built-in Video	729
Two Page Display 19"	959
Two Page Display 21"	1230
Two Page Display Interface SE, SE/30, II, IIsi	399
Precision 8 interface	515
Precision 24x	1700
Precision 8x	799
Radius	
Rocket Accelerator	1700
Apple	
Apple 13" Highres	649
Seiko	
Seiko CM-1445	569
SuperMac	
Platinum 19" Display	964
Platinum Two-Page Display	1239
Super Match 19" Color	1929
Super Match 21" Two-Page Color Display	3031
Trinitron 16" Display	1860
Dual-Mode Trinitron 19"	2893
Thunder/8	1259
Thunder/24	3299
Spectrum 8.24 PDQ	899

MONITORS (cont.)	
Magnavox	
14" Color Monitor	499

DRIVES	Ext.	Internal
Quantum 105 Pro	469	369
Quantum 210 Pro	835	710
Maxtor 120		399
Maxtor 213		659
Maxtor 340		1099
Syquest 44MB		519
Syquest 88MB		879
Internal Kit		29
Syquest 44MB cart.		75

SOFTWARE	
Microsoft Word	269
Microsoft Excell	309
Aldus Pagemaker	497
Caere Omnipage	**499**
Adobe Photoshop 2.0	**515**
Quark Express	**529**
Adobe Streamline	**99**

PRINTERS	
Microtek TrueLaser	**1399**
TI Microlaser PS35	1519
TI Microlaser PS17	1219
HP Deskwriter	439
HP Deskwriter Color	**739**
QMS PS410	**1699**
Qume Crystal Print Publisher II	2119
NEC Mod 90	1579
Crystal Print Mac Publisher	1688
HP Deskwriter Ink Cartridge	18
Appletalk Connectors (Each)	25
New Apple Laserwriters	Call

SCANNERS	
Logitech ScanMan 32	279
Microtek 600ZS w/Photoshop	1349
Microtek 1850S Slide Scanner	**1895**
Caere Typist	420

MODEMS	
Zoom	
FX9624 Plus 2400 BPS	139
Modem MX 2400S w/SendFax 9600 BPS	105
v.32 Turbo w/v.42*bis* w/MNP software	445
Dove Fax Modem 9624+	295

Printer Connection
VISA MasterCard
(714) 758-8832
FAX (714) 635-1752
Overnight and Federal Express Shipping Available

CIRCLE 314 ON READER SERVICE CARD

COMPUTER SYSTEMS

Category continues on the next page.

CLASSIFIED

COMPUTER SYSTEMS

$189 per mo



RENTALS

Also Available:

- Macintosh
- IBM PS/2
- Compaq
- Laser Printers
- Laptops
- Portables

And a host of other peripherals

Next Day Delivery Anywhere in the U. S. A.

Call Toll-Free

PC Computer Rental **800-765-4727**

CIRCLE 319 ON READER SERVICE CARD

BUY LOW

Save a bundle on new and used Macs and get our one year warranty.

SELL HIGH

We'll pay you top dollar for your pampered Mac.

Dial 1-800-MacSwap (1-800-622-7927)

MacSwap

A Logical Choice Company

WOODBRIDGE, NEW JERSEY

MAC CLASSIC 2/40	$1100
MAC CLASSIC II 2/40	STOCK
MAC CLASSIC II 4/105	STOCK
MAC LC 2/40	$1575
MAC LC 4/80	$1829
MAC SI 5/80	$2299
MAC SI 5/105	$2349
MAC SI 5/120	$2399
MAC II CI 4/80	$2999
MAC II CI 4/120	$3099
MAC II FX 4/80	$4349
NEW QUADRA 700	IN STOCK
NEW QUADRA 900	IN STOCK
NEW POWERBOOKS	IN STOCK
PERSONAL LS/NT	$879/1729
LASERWRITER IIG	IN STOCK
LASERWRITER II F	IN STOCK
APPLE STYLE WRITER	CALL
14" VGA COLOR	$349
EXT. 101 KEYBRD	$122
GCC PLP II	BEST
GCC PLP II S	PRICES
GCC BLP ELITE	IN STOCK!
RADIUS COLOR PIVOT	$1269
RADIUS MONO PIVOT	$699
PRESICION 24 BIT CARD	$CALL
SONY 1304 (NI .25 DA)	$569
QMS PS 410	$1699

WE SELL ONLY BRAND NEW COMPUTERS

Micro USA

1-800-227-6888

NO CREDIT CARDS PLEASE

(213) 473-2535 FAX (213) 473-5236

CIRCLE 324 ON READER SERVICE CARD

Mac In Town

BUY, SELL OR TRADE YOUR MAC
Save 50% to 60% from New Prices!

Mac LC 3/40	$1595
Mac II SI 3/40	$1995
Mac II FX 4 MB	$3995
Stylewriter	$299
Syquest 88 Removable (5 yr Warranty)	$699
PLI Infinity 88	$895

Complete Line of Monitors: SuperMac, Ikegami, RasterOps & E-Machines

Call us before you sell your used Mac. No Quantity Too Small or Large

Call for pricing for all new Macs.

CALL 800-MAC N TOWN or 201-224-4273
International Orders - FAX 201-224-6449

CIRCLE 320 ON READER SERVICE CARD

the mac store

Best Prices In Canada Since 1989
No Customs Hassles
The Best Warranty In The Business
Same Day Repair/Replace
Satisfaction Or Money Refunded
True Mac Experts On Staff
All Major Hardware, Software
Service Contracts

(416) 466-8107 | (800) 268-7805

CIRCLE 323 ON READER SERVICE CARD

Mac S·A·L·E INTERNATIONAL New Jersey

Call for Mac World Specials

Entire Macintosh Line
New and Used, Bought and Sold
We carry the latest models in stock!

1-800-729-7031
Compare Our Prices, Quality & Service.

We'll pay cash for your Macintosh Equipment.

CIRCLE 321 ON READER SERVICE CARD

Macs & Upgrades!

Used Macs!		Upgrades!	
Mac IIfx 0/0....	$3899.	II to IIfx.....	$2299.
Mac IIci 0/0....	2799.	SE to SE-30...	849.
Mac II 2/0.....	1799.	IInt to IIntx.....	799.
SE-20 w.k'bd...	949.	Parts! Parts!	....Call
Mac IIcx 0/0.....	2199.	Logic bds.-Power Supplies	



Shreve Systems Call for Catalog!

3804 Karen Lane Bossier City, La. 71112

Int'l 318-742-2700
FAX 318-742-2799

800-227-3971 We Buy Macs!

CIRCLE 325 ON READER SERVICE CARD

BUY · USED MACS · SELL

I'll eat a bug to sell a Mac!

1-800-347-3423

714-558-8822 · FAX 714-558-1603

1317 E.Edinger, Santa Ana, CA 92705

Call ACP

since 1976

CIRCLE 322 ON READER SERVICE CARD

Used Mac Equipment!

Access II

26 Keewaydin Drive
Salem, NH 03079
800-662-5606

Don't buy or sell any new or used equipment until you talk to us. We deal exclusively in Macintosh equipment. Call today for the best deals anywhere!

CIRCLE 326 ON READER SERVICE CARD

MacUser MARKETPLACE CLASSIFIED

COMPUTER SYSTEMS

CRA Systems Inc.
700 So. University Parks Dr.
Suite 350
Waco, TX 76706

We Buy and Sell New and Used Systems Any Quantity
Call 1-800-375-9000
International Sales 817-754-2120 TeleFax 817-754-2345
Consultants/Dealers 817-754-2131 Corporate and Univ. PO's Welcome

New Macintosh CPU's (Lc, Si, Ci, Fx, Quadra 700 & 900, Powerbook 100, 140,170)
Used & Demo Macintosh CPU's (Se, Se30, Portable, II, Cx, X, Ci, Fx)

CLEARANCE SPECIALS

LASER PRINTERS
Apple LaserWriter IIsc, Nbx IIUltra — Call
Laserwriter Plus w/New Printer Engine — $1499
Mitsubishi G370 10U Color 300dpi — NEW
w/Freedom of the Press Postscript color — $3999
NEC, NewGen, QMS & TI — Call
QMS Colorscript 100-10 Demo — $3500
QMS PS Jet Plus Apple Postscript Laser — $1000
Xante Controllers From — $1295
600 X 600 DPI Postscript Laser — $2495
AMD 29000 Risc Processor, Image, Apple From
SOFTWARE OVERSTOCK
Adobe Type Manager — $54
DeskEra v 1.5 — $45
Fourth Dimension v 3 — $299
Freehand — $340
MacDraw II (without Pro Upgrade) — $259
MacProject II — $249
Mac Write II — $99
MacroSoft Works v 1.10 — $155
PageMaker 3.02 (4.0 upgrades) — $374

MONITORS
Apple Color & Mono/Systems — Call
E-Machines Color Page 15" -with Bit — NEW $1100
Mitsubishi 16" 1024 X 768 w/Mac — $1599
Radius Grayscale & Color — Call
RasterOps Trinitron, 8 & 32bit From $599
Sony 15", 16", 19" Trinitrons — Call
Sony 1908 Industrial Trinitron (New) — $2699
Sony 19" Trinitron 1084U — $1099
Supermac 19" Color New & Used From — $1799

MISC.
FastPath 4 Ethernet Router NEW — $1499
Howtek Scanmaster III w/Trans Opt NEW — $3999
HP Scan Jet 400 dpi 16GB DEMO — $899
Laserwriter Plus Upgrade Roms NEW — $395
Maxtor 650 meg SCSI NEW — $1499
Mirus, Montage & Agfa Film Recorders — Call
PhoneNet StarController NEW — $295
Raster-Ops 24L 24 bit color board NEW — $1900
Redime 210 Cobra — $699
Sharp JX-450 11x17 color 24 bit scanner — Call

CALL US FOR ALL YOUR MACINTOSH NEEDS USED OR NEW

CIRCLE 327 ON READER SERVICE CARD

MACMARKET
800•223•4•MAC

PowerBook 100 4/20	$2219
PowerBook 4/20 & DR.	$2388
PowerBook 140 4/20	$2722
PowerBook 140 6/40	$3177
PowerBook 170 8/40	$4595
Classic II 4MB•40HD	$1635
Classic II 4MB•80HD	$1999
Classic II 10/105 & FPU	$2355
Quadra 700 4MB	$4444
Quadra 700 8/105	$4848
Quadra 700 20/200	$5395
Quadra 700 20/425	$6195
Quadra 900 20/200	$6795
Classic 2MB•40HD	$1144
Classic 4MB•105HD	$1333
Mac LC 2Mb•40 HD	$1695
Mac LC 4Mb•105 HD	$2099
Mac IISI 3MB•40HD	call
Mac IICI 20MB•425HD	$5195
Mac IIFX 20MB•425HD	$5695
Stylewriter	$399
Laser Personal NT	$1725
Apple Laser IIF	$2727
Apple Laser IIG	$3434
HP Deskwriter	$420
HP Deskwriter color	$749
LaserMax 1000DPI	call
Apple 12" Color	$399
Seiko 14" Color	$565
Radius Pivot	$750
Radius Pivot Color	$1295
Supermac 19" Color	$1850
Nubus Adapter or 030	$188

Prices are subject to change without notice.
All systems new•One Year Warranty
Visa & MC add 2%
818•343•4087 (CA)
FAX: 818•343•2376

CIRCLE 328 ON READER SERVICE CARD

SUPER DEALS ON USED/NEW MACS!
- BUY • SELL • TRADE • USED • NEW •
- Mac Plus/SE 549/798
- Mac Classic 4/52 (New) 1249
- Mac IIcx/x/ci 2249/2349/2949
- Mac Power Books, Classic II, Quadras ..... LOWEST
- Other Macs and all peripherals ..... CALL
- Call for Daily SPECIALS! •

M.P. – Computer Micro Systems
655 West Evelyn Ave., Suite #2
Mountain View, CA 94041
(415) 960-1514 FAX (415) 968-0509

WE WILL NOT BE UNDERSOLD!

Mac Classic II	Call
Mac LC 2mb/40HD w/kb	1620
Mac II 2mb/40HD	2050
Mac IIx 5mb/80HD	2550
Mac IIsi 3mb/40HD	1999
Mac IIci 5mb/105HD	3150
Mac IIfx 4mb/105HD	4585
Mac IIfx 8mb/345HD	5485
Mac Quadra/Notebooks	Call
Apple IIGS	350
RasterOps 19" Trin,24xLi	5099
RasterOps 19" Trin,8xLi	3899
Radius 19" Color+24bit	4899
Radius Color Pivot	1285
Ikegami 20" Trin,24bit	3495
SuperMac w/24bit PDQ	5590
Abaton Laserscript LX	1595
HP Deskwriter color	750
Lsrwriter IIF/IIG	Call
LaserMax 1000/1200	Call
NewGen High Res Printers	Call
Microtek TrueLaser	1399
QMS/GCC/Ptrs	Call
Seiko ColorPoint, 11x17	7850
Microtek 600ZS	1388
Sharp JX-450 w/GPIB	4585
UMax 630 w/pshop,OCR	1388
DayStar 50Mhz Pwr+Co	1790
"Cordless" Mouse	Cheap

DEALERS AND INTERNATIONAL SALES WELCOME.
Best Prices, Service, Delivery! Call or fax for best quotes

DATA COMPUTER CENTER
TEL 310-470-9555
FAX 310-470-9457
2253 Westwood Blvd
los Angeles, CA 90064

CIRCLE 329 ON READER SERVICE CARD

MacUser Marketplace
is a special economical section for product and service listings.

DATA RECOVERY SERVICES

WE CAN SAVE IT!
DRIVESAVERS™
415•883•4232
- Macintosh Data Recovery
- Repair any Mac Hard Drive
- Optical/SyQuest Recovery
- Fast Nationwide Service

30-D Pamaron Way
Novato, CA 94949

CIRCLE 330 ON READER SERVICE CARD

DISK DRIVES

1 (800) 525-6465

Caché Systems
"Your Storage Solution"
COMPLETE EXTERNAL
Mac SUBSYSTEMS

40MB Conner	$319
50MB Quantum	$329
80MB Maxtor	$399
100MB Quantum	$469
120MB Conner	$499
200MB NCL	$619
320MB Wren	$1299
150MB Teac Tape	$559
150MB Tape Cart	$25
42MB Syquest	$395
42MB Cartridge	$63
Clear Scan™ NCL Color Hand Scanner	$495

All Items New/C.O.D. O.K.
Visa/MC No Surcharge

917-A Disc Drive
Scotts Valley, CA 95066
(408) 438-7595
FAX (408) 438-8318
Mon.-Fri. 8am-5pm PST

CIRCLE 331 ON READER SERVICE CARD

DISK DRIVES

MEMORY HARD DRIVES
SYQUEST Removable

SYQUEST SPECIAL
88 MB w/Cartridge $599
Cartridge $105
44 MB w/Cartridge $429
Cartridge $ 64

External Removable
for PC Compatible $499

	INTERNAL	EXTERNAL
Maxtor 40 MB (LP)	$225	$305
Maxtor 80 MB	$285	$365
170 MB	$568	$638
QUANTUM SPECIAL 210 MB	$625	$715
50 MB	$235	$325
105 MB	$345	$435

Perfect for MAC CLASSIC, LC, SI

SIMMS — *SIMMS – Lifetime Warranty*
1 MEG X 9 SIMM 80ns $39
1 MEG X 8 SIMM 80ns $37
LC Monitor — For MAC LC 256 Colors $398
1024 X 768 CTX

Internal Hard Drive Kit for MAC HD $25
External Hard Drive Kit for MAC $109

AXONE
Tel: (215) 687-8930
Fax: (215) 971-0559
AXONE Computer Systems, Inc.
14 West Avenue
Wayne, Pennsylvania 19087
no surcharge
1-800-955-0388
University & Corporate Orders Welcome

CIRCLE 332 ON READER SERVICE CARD

DISKETTES

FORMATTED DISKETTES
BASF, VERBATIM, SONY

WITH FORMAT	QTY 250 MIX & MATCH	WITHOUT FORMAT
$ 44	5.25" DS/DD	$ 39
$ 66	5.25" DS/HD	$ 56
$ 63	3.50" DS/DD	$ 53
$1.09	3.50" DS/HD	$ 99

- **FREE FORMATTING** on First Order
- **TYVEC SLEEVES** & Labels Included
- **COLORED MEDIA** Please Add $.05
- **PRIVATE LABELING** Available
- **SAME DAY** Shipping
- **MONEY BACK GUARANTEE**

800-255-3142
Diversified Systems Group, Inc.
PO Box 1114, Issaquah WA 98027

CIRCLE 333 ON READER SERVICE CARD

GENERAL

!!!!REPAIRS BY MAIL!!!!
Low cost, fast turnaround. Mac +, SE Logic Board swap, $225.00 + S&H. One year warranty. Power Supplies as low as $100 + S&H. Keyboard repairs as low as $12.50 + S&H. Open 12 to 10 Eastern Time. We buy dead Macs, PCs, Apples
Arminius Pubs. and Prods, Inc.
POB 1265/8519 Orchard
Merchantville, NJ 08109
(609) 662-3420

Tell Your Source!
I Found it in **MacUser Marketplace**

Maya Computer

CD ROM



One of the best drives on the market right now is the NEC CDR-73. It has good software, is lightning fast, and doesn't cost a fortune. With the Reference bundle you get over $500 of the best disks on the market for less than $150. If NEC isn't your style or if you want something portable the CD Technologies Porta-drive is your best bet. It is the second fastest drive on the market and has battery power options for true portability. The best price-performance drive would be the Chinon CDA-431 or the more versatile CDC-431, their speeds are more than adequate at 350 ms and the CDC adds the function of remote control for playing audio disks.

Hapy Mayer
Northwestern University Student

Maya Computer

NEC CD Gallery™



With 7 of today's most popular and innovative interactive CD-ROM software programs.

Includes:

- NEC CDR-73 or CDR-36 Drive
- KOSS SA/20 Speakers
- Headphones
- Mediagenic - Cosmic Osmo
- Warner - Beethoven's 14th String Quartet
- Discis Books - Cinderella
- The Time Table of History Science and Innovation
- New Grolier Electronic Encyclopedia
- The Software Toolworks World Atlas
- Time - Desert Storm

7 CD titles, 2 speakers & headphones with CDR-73 $779

7 CD titles, 2 speakers & headphones with CDR-36 $539

NEC Drives without bundle:

NEC Intersect CDR-73 / 300ms.....655
NEC Intersect CDR-36 / 500ms.....449

CD-ROM Drives

Chinon CDA-431



350ms $569

CHINON CDC-431

Play audio CDs with remote control!

A 350 ms drive that is surprisingly affordable. The CDC-431 can recognize either an audio CD or a CD-ROM disc. The audio can be controlled with the remote control unit as well as the program command. Comes with Power adapter, 37-Pin x 50-Pin Chinon interface cable, CD caddy and a remote control unit.



$599

Maya Computer

Toshiba XM3301A



325ms $649

CD Technologies CD Porta-Drive



325ms portable $599

CD Super Bundle!

Buy any CD-ROM Drive in this ad and get these 11 CDs for $200!

Wayzata CD Fun House.....(List: $65)
A disc with over 50 mb of public domain and shareware games. The disc is divided into ten genres of computer gaming: The Arcade, Star Fleet HQ, The Casino, The Simulator, Games Parlour, Adventureland, Word Games, Sports Palace, and The School House. The whole disc has a index in HyperCard 2.0. This disc is the most complete public domain and shareware library of games available for the Mac.

Wayzata Washington Times & Insight on the News.....(List: $149)
The Washington Times and Insight on the News CD-ROM brings you the power of Front Page News with an editorial twist. Insight on the News is a national news weekly magazine with in-depth coverage and analysis of current events. With The Washington Times you obtain national news plus the inside track on political happenings. This disc covers June 1989 to June 1991.

Wayzata Gaia/Environmental Resources.....(List: $249)
Over 500 high resolution 24 bit color pictures of environmentally sensitive nature scenes, in PICT and TIFF formats. Extensive HyperCard databases of environmental organizations and publications, informative texts on Gaia theory, ecology, and environmental concerns. Graphics tutorials with technical information about the pictures.

Wayzata EPS Professional.....(List: $299)
Over 500 high-quality, fully resizable encapsulated PostScript Images in 2 collections. One collection consists of Design Elements T-shirts, alphabetic designs, 4 color pieces, covers and backgrounds. The second collection includes seasonal clip art.

Wayzata PhotoBank.....(List: $185)
Over 500 mb of high-resolution color photographs never published before. Topics include cars, nature, technique, various, patterns, flags, hotels, people, motels, folklore, backgrounds, statues, animals, traffic, buildings, finance, in the city, on the beach. Works with a HyperCard interface, offering Direct preview of all photographs.

CMC Shakespeare.....(List: $49)
The complete unabridged and total works of the world's greatest playwright of all times including plays, poems, and sonnets. Includes both the Queen's English and modern English versions.

CMC Audubon Birds of America.(List: $99)
Audubon's complete 1840 first edition plates in full color and text, plus superb quality bird calls form Cornell Laboratory of Ornithology. Each bird has a fascinating story told by Audubon.

CMC Sherlock Holmes.....(List: $49)
The world's greatest consulting detective and Dr. Watson solve crimes in these classic stories of detection. Linoleum block prints by Dr. George Wells accent the stories.

CMC Mammals.....(List $99)
Audubon's beautiful, classic mammal prints are now available on multi-media CD-ROM disc. The rare and complete 1840 edition of "Quadrupeds of North America" includes plates in full color and the text as well as CD quality sounds form Cornell University's Library of Natural. Audubon compiled detailed information about each mammal.

CMC Family Doctor.....(List $99)
Edited by Allan Bruckheim, MD, FAAFP, a nationally recognized physician and syndicated columnist. The Family doctor provides home medical information in a question and answer format. Topics are presented in the from of health update booklets. Over 240 high quality color images illustrate human anatomy, diseases, and common medical procedures. An information base is provided with hundreds of phone numbers and contacts of national and local support groups and foundations.

ICP Macintosh Software Ref. Database.....(List: $49)
ICP Mac Software Reference Database is an extensive hypercard based reference guide to thousands of Macintosh software products including detailed description, prices and sources.

List price Total 1391
You Pay....$200
You Save.....1191

Maya Computer

Monthly Specials!

Color Printer Blow Out!!

New QMS Colorscript 100 Model 30i.....8500
Demo QMS Colorscript 100 Model 10p.....4834
New Sharp JX730 Inkjet Printer w/sheet feeder.....1699

Networking

Shiva Fast Path 5 -new.....1750
Kinetics Etherport SE.....99

High Capacity Media At low prices!

Maya Computer

Sony High Density DAT Tape DG60M.....19
Sony High Density DAT Tape DG90M.....25
Sony Exabyte 112m 8mm Tapes.....17
3.5" Optical Media 512 bps Sony Approved.....69
5.25" Optical Media 512 bps Sony Approved.....117

5.25" Optical Media
1024 bps Sony Approved
$117

Dove 68030 Upgrades

Marathon 030 for the Plus.....199
Marathon 030 for the II.....399
Marathon 030 for the IIx.....399
Marathon Racer 33 MHz for the II.....699

CD-ROM Drives

Chinon CDA 431 Demo.....479
CD Technology Porta-Drive Demo.....500
Apple CD SC Plus Demo.....649

CD Caddies

Apple CD Caddies box of 5.....45
Generic CD Caddies each.....8

CD-ROM Titles

Bureau of Electronic Publishing 3 disk bundle World Fact Book, World Atlas, PD collection.....99
Voyager - Stravinsky's Rite of Spring.....69
Discimagery -Professional Photo Collection.....89
Meridian Data -GRIPS II.....39
NEC- Image Gallery.....239
HyperGlot - Lingua-ROM I.....199

Modems

Prometheus 9600 data/9600 fax.....399
Prometheus 2400 data/9600 fax.....229
Microcom MacModem 9600 w/Carbon Copy new.....599
Microcom MacModem 9600 w/Carbon Copy used.....499

Miscellaneous

WACOM Cordless Tablet NEW! 6 X 9.....469
Radius Impress it.....59
Ikegami CT20 w/ National Semi 24 bit card.....3499
Apple PC Drive with card for II or SE.....199

While Supplies Last!

Software All Brand NEW!

Microsoft Excel 3.0.....279
Microsoft Word 4.0.....229
Microsoft Project.....389
Sitka Tops for Mac Bundle 3.0.....69
Appleshare 1.0.....79
Apple X-Windows.....243

Parts

Mac Plus power supply rebuilt 6 mo. warranty.....150
Mac Portable Logic Board.....989
LaserWriter IISC logic board.....39

Get the New Maya Catalog

$FREE$

Pages of informative text on how to buy used computers, CD-ROM, and modems.

The Maya catalog is filled with the latest hardware, software, used CPUs, CD-ROM, modems and more... all at prices you'll love. Because it is informative as well as a comprehensive listing the Maya Catalog has become a much sought after favorite of power users, consultants and Mac enthusiasts everywhere.



Call and get yours today.

Maya Computer carries the most complete selection of discounted CD-ROM titles! Call now for your free catalog.

Call Mon-Fri 9-9 / Sat 10-4
Maya Computer, Waitsfield, Vermont 05673
802-496-8110 FAX • 0120-425-622 TOKYO

800-541-2318

Maya Computer

CIRCLE 334 ON READER SERVICE CARD

CLASSIFIED

GENERAL

Pre-Owned Electronics™
INCORPORATED
THE Independent Provider, serving the Dealer, Professional, Corporate, Government & Educational Buyer since 1985

Apple & Macintosh Systems, Parts, and Exchange Repairs

WE BUY MACS!

CALL FOR A CATALOG (800)274-5343 Int'l (617)275-4600 FAX: (617)275-4848

205 BURLINGTON ROAD ■ BEDFORD ■ MA 01730

CIRCLE 335 ON READER SERVICE CARD

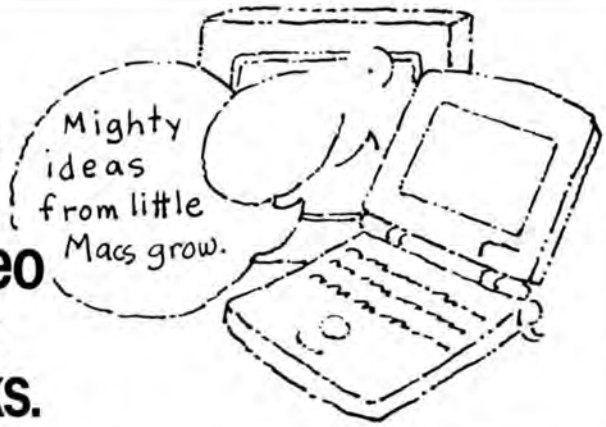
INSURANCE

INSURES YOUR COMPUTER
SAFEWARE provides full replacement of hardware, media and purchased software. As low as $49 a year provides comprehensive coverage. Theft, fire, power surge, storms and more. No lists of equipment are needed. One call does it all! Call 8am to 10pm ET (Sat. 9 to 5).
SAFEWARE, THE INSURANCE AGENCY INC.
2929 N. High Street, P.O. Box 02211
Columbus, OH 43202
(800) 848-3469 (NAT) or
(614) 262-0559 (OH)

ComputerInsurance PLUS
Insure in one easy step! ComputerInsurance PLUS replaces your computer after fire, theft, power surge, natural disasters, including earthquake. Call NOW to receive comprehensive coverage and full replacement.
The ComputerInsurance Agency, Inc.
6150 Old Millersport Rd., NE
Pleasantville, OH 43148 Hours:
(800) 722-0385 10 a.m.-6 p.m.

MEMORY UPGRADES

RAM Cards and Big Screen Video for the Mac PowerBooks.



The Macintosh PowerBooks bring a new era of flexibility to Mac computing. Now you can have a real Mac the size of a book that fits in your briefcase. To make those mighty ideas grow, you need more RAM and a big screen. Here they are:

1. **BookRAM**™ memory card for all PowerBooks. Comes with 2 megs, 4 megs or 6 megs of Pseudostatic RAM, factory upgradeable. Makes your Powerbook a MultiFinder monster with new memory elbowroom.

2. **BookRAM™ DRAM** memory card. Deft circuit design yields low cost and low power drain for a 4 meg card. Maintains battery life.

3. **BookView.**™ An adapter for a second external screen in addition to the current screen. A dealer installed adapter that duplicates the visual display on the built-in LCD screen and interfaces to major displays.

4. **BookView™ Imperial.** Adds 4 megs of DRAM and provides color or grey scale monitor output for the 68030 models and monochromatic output for the 68000 model. Supports standard and full page VGA, Apple monitors, NTSC and overhead projectors.

Call for prices on 1 meg, 2 meg and 4 meg SIMMs, Softstep® and Two Step™ memory expansion modules, Pac RAM™ for the Portable, Video Mac Pac for the Portable, and Mac Rescue™ upgrade board for Enhanced 128K & 512K Macs.

See us at MacWorld in Booth 5710, Brooks Hall.

Ford Centre, Suite 1180
420 North Fifth St.
Minneapolis, MN 55401
(612) 371-0061
(800) 950-CARE (2273)
(612) 371-9342 Fax
AppleLink: D6962

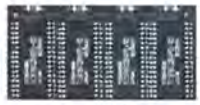
Computer Care

Dealer inquiries welcome. Visa, MC, AMEX, Discover accepted.

CIRCLE 336 ON READER SERVICE CARD

PB Ram™
Memory For All Powerbooks





$Lowest per 2 MByte

- 2/4/6 MByte
- *Upgradeable!*
- Gold Plated

16 MB SIMM's $825
(for Mac IIci, IIsi, IIfx, Quadras)

- 16 or 32 MB SIMM kit (4 or 8 -4 MB / -80 ns) for the Mac II, IIx, cx, ci, si, fx, Quad's $575 / $1150
- 8 MB kit for the Mac LC or SE/30 $288
- 2 MB SIMMs for the Mac IIsi, IIci, LC $99
- 4 MB SIMM kit for any Macintosh $159

PortaRam™

for the Mac Portable



$225* per Megabyte (1 to 8)

* Call if you find a lower price - we'll beat it!

- One to Eight Megabyte
- Built-in Surge Protector
- Uses RAM Slot - Not PDS
- User Upgradeable!
- Gold Plated Boards
- Very Thin 5/8" Max

Shadow Technologies
1767 Morning Glory Road
VISA Livermore, CA 94550
M/C (510) 548-0130

CIRCLE 337 ON READER SERVICE CARD

MEMORY UPGRADES

Category continues on the next page.

Let Your Source Know You Found it in **MacUser Marketplace**

CLASSIFIED

MEMORY UPGRADES

The LLB Company

300 - 120th Ave NE • Bldg. 7, Suite 108 • Bellevue, WA 98005
Phone (206) 454-7258 • Fax (206) 454-7302



Energize your Macs with: SIMMs

1 x 8 - 80 ns – as low as:
Quantity Pricing per Mb sold in 2 Mb sets

$36

4 x 8 x 80ns	1 x 8 x 70fx
8 x 8 x 80 ns	2 x 8 x 80ns
16 x 8 x 80 ns	4 x 8 x 80 MacII/IIx
16 x 8 x 80fx	4 x 8 x 70
1 x 8 x 70 ns	4 x 8 x 80fx
1 x 8 x 100 ns	ToolKit
1 x 8 x 80fx	

TECHWORKS.
1,2,3 or 4 MacPortable SIMMs
MacLC 512k Video
MacClassic 1Mb/3Mb Card

Cables
Serial cables, modem cables, SCSI cables



Always low prices on the removables you trust

$66

44 MB SyQuest Cartridges
NEW! 88 Mb Cartridges from $119

DayStar
Universal PowerCache
33, 40, or 50 Mhz



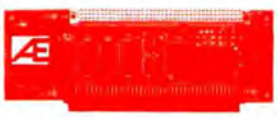
Lexus Turbo Modem
Compact 2400 baud modem. Easy to install



Applied Engineering
Internal Mnp5 Fax/Modem board
Fits MacIIx only.



Applied Engineering
Quadralink
Quadralink is the answer to clogged serial ports! Fully compatible with the Mac's Communication Toolbox and System 7.0.
5 year warranty.



Applied Engineering
QuickSilver
Includes FPU. QuickSilver gives your IIsi a slot extender, cache card and math co-processor. The extender enables cards created for the SE/30 to fit neatly inside the IIsi case. 5 year warranty

68882 Math Co-Processor Boards and chips

68030 Accelerators
with optional math chips for SE, Plus, Classic.

Compare our low shipping prices:

- $6 overnight shipping by Airborne Express - $3 ground shipping by UPS
- Orders received before 7:30 PM Eastern time weekdays ship the same day
- All Educational and governmental PO's accepted upon approval
- Bank cards accepted. Your card is not charged until the order is shipped.
- We export to most countries in the world
- Quantity pricing for dealers

All Government and Educational PO's accepted
Fax your orders 24 hours a day • Call between 7 am and 6 pm Pacific Time

1-800-848-8967 Ext. MU

CIRCLE 338 ON READER SERVICE CARD

MEMORY UPGRADES

MEMORY UPGRADES

SIMMS 1MB to 16MB
for: Plus / SE / SE30 / Classic / LC
II / IIx / IIci / IIcx / IIsi / IIfx
Portable 1MB - 8 MB
LaserWriter NTX

CACHE CARD - IIci & IIsi
ACCELERATOR CARD
128, 512, 512E, PLUS, SE, CLASSIC
FAX / DATA MODEMS

To order call:
1-800-292-7771

For Instant Product Information via **ROBOFAX**
Call: 1-800-424-FAXX Day or Night

ADD•ON AMERICA
433 N. Mathilda Ave.,
Sunnyvale, CA 94086

Phone: 408-746-1590 Fax: 408-746-1593

CIRCLE 339 ON READER SERVICE CARD

LOWEST PRICES ON MEMORY!
•Lifetime Warranty • Overnight Shipping $8•

1, 2 & 4 MEG SIMM	UPGRADES
IIci/IIsi Cache Card	68030 Accelerator-Call
IIsi '3-in-1' Card	512Ke - Plus $255
HP Laserjet Board	Syquest Cartridges
Video Ram Upgrade	Mac LC Video SIMM
Mac Portable Ram	Mac LC 68882 Math FPU

Visa & MC OK - add 3%

Peripheral Outlet • (800) 332-6581
314 S. Broadway • Ada, OK 74820 • 405-332-6581 • Fax 405-436-2245

CIRCLE 341 ON READER SERVICE CARD

Whatever team you're on,
MacUser Marketplace
provides the advantage!

Buyers - Quality Products at Good Prices
Advertisers - Reach knowledgeable Buyers
Ready to Buy!

For More Information Call
(212) 503-5115 or **(800) 825-4ADS**

MEMORY DIRECT
"Don't pay retail...buy direct"

DAYSTAR DIGITAL
Accelerators for your Mac

MAC LC, IIsi, IIci, II, IIx, IIcx, IIfx or 030 Mac Chip

25Mhz PowerCache	$749	—
40Mhz PowerCache	$949	$1160
50Mhz PowerCache	$1640	$1920
PastCache IIsi	$315	$360
PastCache IIci	$259	—

SCSI power Card $1149
0-256 Meg RAM Power Card - $749.

SUPERMAC

Accelerated Graphic Cards		Displays	
Thunder/24	$389	21" 2 Page Color	$3219
Thunder/8	$399	19" Supermatch Color	$2049
Spectrum/24 PDQ		19" Dual Mode Trinitron	$3099
w/ Display Calibrator	$3159	19" Platinum	$3529
Spectrum/8-24 PDQ	$1029		
Spectrum/8-24 si PDQ	$1029		

Call us Toll-Free for step by step installation instructions!
P.O.s accepted for:
• Fortune 1000 • Government • Educational Institutions

MEMORY
Memory Upgrades for your Macintosh

MAC CLASSIC
1 MEG BOARD -$89. • 2 MEG KIT -$92

MAC PORTABLE
1 MEG KIT -$199. • 2 MEG KIT-$499.
3 MEG KIT -$749. • 4 MEG KIT-$949.

MAC LC
2 MEG KIT -$92 • 4 MEG KIT - $210.
8 MEG KIT -$350 • 512K VRAM - $110

MAC IIsi
4 MEG KIT -$178. • 8 MEG KIT -$420.
16 MEG KIT -$740.

MAC SE/30, IIcx IIci
4 MEG KIT -$178. • 8 MEG KIT-$362.
16 MEG KIT-$740. • 32 MEG KIT-$1432.

MAC II, IIX
4 MEG KIT -$178. • 8 MEG KIT-$352.
16 MEG KIT-$780. • 32 MEG KIT-$1520.

MAC FX & LASERWRITER II NTX
4 MEG KIT -$199. • 16 MEG KIT -$810.
32 MEG KIT-$1599.

8 MEG SIMMS - CALL
16 MEG SIMMS - CALL

HARD DISKS

QUANTUM	Internal	External
52MB	$259	$339
105MB	$469	$539
120MB	$629	$699
210MB	$785	$845
MAXTOR		
340MB	$1439	$1539
760MB	$1699	$1859
1.2Gig	$2739	$2959

SYQUEST
45MB Removable with Cartridge $459!

ASANTÉ NETWORK PRODUCTS

NuBus Adaptors (MAC II, IIx, IIcx, IIci, IIfx)	
Mac Con •II ET (Thick & 10 BaseT)	$289
with 64K	$319
PDS Adaptor (Mac IIsi, & SE 30)	
Mac Con • 30i ET (Thick & 10 BaseT)	$289
with 64K	$319
Adaptor For Mac II LC	
Mac Con • LC	$289
Friendly Net (supports Apple Cabling Sys.)	$279
Asante 10T Hub (14 ports)	$799

Lifetime Warranty
Free tool included
Same Day Shipping

1-(800) 486-CHIP (2447)

CIRCLE 340 ON READER SERVICE CARD

Prices subject to change

MacUser Marketplace
For additional information call Account Representatives:
Dennis Leavey Thomas Koletas Laura Salerno Lawrence Johnson
Call **(212) 503-5115** or **(800) 825-4ADS**

MacUser Marketplace

Gives you the versatility you need to get your product the most attention. Our options include:

- Second and third color options
- Flexible ad sizes available to meet your needs
- Frequency and advance payment discounts that let you get the most from ad dollars

CLASSIFIED

SyQuest · Seagate · RICOH · TEAC · PIONEER · Quantum

Video Packages

All Packages Include Monitor, Video Board & Cable!

19" Grayscale - 256 Shades	799
19" Color - 256 Colors	999
19" Color - 16-Million Colors	1,899
19" Trinitron - 256 Colors	1,999
19" Trinitron - 16-Million Colors	2,899

16 Million Colors!

19" Trinitron

Includes 19" Trinitron, 24-Bit Video Board, & Cable - Complete!



$2,899

24-Bit Color Scanner



$1,099 16-Million Colors! Epson Engine

Available with Color Studio LE and Scan-Do software. Why purchase an 8-Bit color or grayscale scanner when you can have this high-quality scanner which operates in 24-bit mode for only $1,099! Scans over 16,000,000 colors and 300 x 600 resolution!

Scanner Only (110 V)	1,099
Scanner with Software Bundle	1,249

SyQuest - 44/88 Meg.



SyQuest's 88 Megabyte removable cartridge drive offers speed and a higher capacity! 2-year warranty.

Mobile 44 Vista - includes cartridge	429
44 Megabyte Data Cartridge	68
Mobile 88 Vista - includes cartridge	599
88 Megabyte Data Cartridge	119

© 1992 ReLax Technology. RELAX, Plus, Sierra, Mobile 44MB, and Vista are trademarks of ReLax Technology, Inc. All Trademarks and Registered Trademarks are the property of their respective holders.

Hard Disk Drives



105 Meg. $349

Complete System - all cables and software included. Vista Case - Seagate ST1126N, 15 ms. Special Purchase - for a limited time only!

	Internal	External
52 Meg. - Quantum LPS, 11 ms.	219	279
105 Meg. - Seagate, 15 ms.	289	349
105 Meg. - Quantum LPS, 18 ms.	339	399
120 Meg. - Maxtor, 17 ms.	439	499
170 Meg. - Seagate, 15 ms.	539	599
180 Meg. - Fujitsu, 20 ms.	599	659
210 Meg. - Quantum, 12 ms.	639	699
300 Meg. - WREN, 16.5 ms.	1,099	1,159
330 Meg. - RUNNER, 11 ms.	1,299	1,359
600 Meg. - WREN, 16.5 ms.	1,439	1,499
660 Meg. - RUNNER, 12 ms.	1,739	1,799
1.0 Gig. - WREN-7, 15 ms.	1,939	1,999
1.6 Gig. - WREN-8, 15 ms.	2,689	2,749

CD-ROM Drives



Toshiba CD-ROM $579

Complete System - includes cables, carrier, and software.

CD-ROM Vista - Toshiba	579
Pioneer 6-Disc CD-ROM Player	999

Rewritable Optical

Complete System - includes cables, one-cartridge, and software. All are mounted in our premium Vista Case.

600 Meg. Optical ISO - RICOH E-I	1,899
600 Meg. Optical ISO - RICOH E-II	2,799
600 Meg. Optical Cartridge	129
600 Meg. WORM - Pioneer	3,199
600 Meg. WORM Cartridge	119
1.0 Gig. Optical ISO - Maxoptix Tahiti	3,999
1.0 Gig. Tahiti Cartridge	269

Price -
Our size allows us to purchase at the lowest possible cost, and we manufacture in our own factory. Then we pass the saving on to our customers.

Performance -
Serious business and professional users demand top performance, the WREN Runner from Seagate and Quantum high-performance 3-1/2" drives.

Service -
All products are 100% tested - and you probably won't need our help - but if you do, our ESP service program will have you up and running in 48 hours - guaranteed!

Selection -
We offer more than 300 different products for the IBM, Macintosh and SUN. From 120 Megabyte portable hard disk to 24-Bit Trinitron video packages we offer more of what you need. Call for 1992 catalog.

Quality -
We only offer quality products that you can depend on. And if for any reason you are not 100% satisfied we offer a 30-day money back guarantee - we Guarantee Your Complete Satisfaction!

OUR 14 ANNIVERSARY 1978 1992

Tape Drives

160 Meg.

Transportable backup solution for the Mac. Backup software, external power supply and cassette included!



$529

All Tape Drives Include One Cassette & Software

60 Meg. Tape Vista - TEAC	429
160 Meg. Tape Sierra - TEAC	529
2.0 Gig. DAT Tape Sierra - Archive	1,359
2.2 Gig. Tape Vista - ExaBYTE	2,099
5.0 Gig. Tape Vista - ExaBYTE	3,329

510-471-6112

RELAX T·E·C·H·N·O·L·O·G·Y

3101 Whipple Road
Union City, CA 94587
FAX: 510-471-6267
TEL: 510-471-6112

We will BEAT any competitor's price for comparable product - call for details!

MasterCard VISA

Call or FAX for *FAST SERVICE!* No surcharge for credit cards or COD, terms available for approved accounts. We ship same day via Federal Express.

CIRCLE 342 ON READER SERVICE CARD

PERIPHERALS

Mac News

1555 SHERMAN AVE • SUITE 361 • EVANSTON, IL 60201 • 24HR FAX 312-871-4556

Printers

TEXAS INSTRUMENTS

TI microLaser Plus PS/17 $1,249

9 ppm, 300 dpi, 17 PostScript fonts
35 PostScript font version just $1,565



We carry the full line of Texas Instruments Laser Printers

TI microLaser XL PS/17 $2,425
16 ppm output, 300 dpi, 17 PostScript fonts
35 PostScript version also available

NEW TI microLaser XL TURBO PS/35 Call

Displays

RasterOps Color System $3,595
19" Color Trinitron Display with 8XLi

E-Machines T16 $1,595
Award-winning 16" Color Sony Trinitron

E-Machines T16 XL/24 $2,645
16" Color Display with 24-bit accel. card

SuperMac Displays & Cards **Call**

Macs

All Configurations Available.

Classic,2/40	$1,099
Mac IIsi,3/40	Call
Mac IIci,5/0	Call
Quadra 700	$4,295
Quadra 900	$5,495
PowerBooks	Call

Publication deadlines don't always allow us to advertise our latest price. Call for latest details!

DayStar Cache Cards

PowerCaches

33 MHz	$639
40 MHz	$835
50 MHz	$1,259

FastCaches

IIci/IIsi	$245/$279

Scanners

Microtek 600ZS
24-bit Flatbed **$1,395**

Microtek 1850S
Slide Scanner **$1,895**

Howtek
Personal Color Scanner
$1,195

Prices subject to change without notice. **Warranties.** All warranties on Apple/Macintosh products sold by MacNews will be honored by MacNews or its authorized agents only. All other manufacturer warranties still apply.

Visa
MasterCard
No surcharge

1-800-243-9383

Federal Express

CIRCLE 346 ON READER SERVICE CARD

NEW 3-YEAR WARRANTY ON ALL RASTEROPS

MacOutlet
GRAPHICS DISPLAY SYSTEMS SPECIALISTS

Toll Free (800) 622-6885
Canada (800) 833-6698
Bay Area (510) 623-8890
48860 Milmont Dr., 103C
Fremont, CA 94538

RasterOps 24L 16" Trinitron System	$2495
RasterOps 19" Grayscale System	$1299
RasterOps 24XLI 24 Bit Acc.	$2399
RasterOps 24STV / 24XLTV	$1149/$2699
RasterOps Expresso Slide Scanner	$ 699
E-Machines T-16 16" 8 Bit System	$CALL
E-Machines T-16 XL24 24 Bit Accel.	$CALL
Daystar Fast Cache II	$ 259
Daystar 40mhz PowerCache	$ 895
Daystar 50mhz PowerCache	$1299



AUTHORIZED *RasterOps*, DAYSTAR, E-MACHINES & NEC DEALER
NOW IN STOCK! FULL LINE OF AVR SCANNERS

CIRCLE 343 ON READER SERVICE CARD

OEM
OMNISHORE ELECTRONICS MFG CORP.

- A quality source of your external SCSI hard disks, tape backups, and combo units. Apple, Mac, IBM compatible.
- An exclusive manufacturer of all FIRST CLASS PERIPHERAL SIDERS. Also provide service, repair, and upgrade on existing models.
- See our AD in the upcoming issues of this magazine.

1700 Forrest Way
Carson City, NV 89706
Sales: 800-982-3232
Tech Spt: 702-687-2800

• PLEASE MENTION THIS AD •

HARD / TAPE / CDROM / OPTICAL

CIRCLE 345 ON READER SERVICE CARD

9-Track Tape Subsystem For the Macintosh™



Exchange data files between your Macintosh and any mainframe or mini-computer using IBM compatible 1600 or 6250 BPI 9-track tape

Unit can also be used for disk backup. Transfer rate is up to 16 megabytes per minute via your SCSI interface. Subsystem includes, tape drive, software, and complete documentation. For more information, call us today!

QUALSTAR

9621 Irondale Avenue
Chatsworth, CA 91311
FAX: (818) 882-4081
Telephone: (818) 882-5822

Macintosh is a trademark of Apple Computer, Inc

CIRCLE 344 ON READER SERVICE CARD

MacUser Marketplace

Gives you the versatility you need to get your product the most attention. Our options include:

- Second and third color options
- Flexible ad sizes available to meet your needs
- Frequency and advance payment discounts that let you get the most from ad dollars

MacUser Marketplace
Second Color Option Available

CLASSIFIED

MacUser MARKETPLACE

PERIPHERALS

The Best Products, Prices and Service

1-800-626-1889

Specializing in Desktop Publishing, Presentation and Video.

DeskTop Direct, Inc.

RasterOps 24STV board	$1155	DAYSTAR FastCache IIci	$255
24s or 24si	$445 / $645	SCSI PowerCard	$1065
24XLTV Video Color Board	$2575	FastCache IIsi or with FPU	$295 / $365
24XLTV 19" Hit. or Trin. Sys.	$4375 / $5345	Dual Port IIsi or with FPU	$95 / $165
24XLi 19" or 21" Hitachi Sys.	$4055 / $5155	PowerCache II, IIx, IIcx, IIci, IIsi, LC, SE/30...	
24XLi 19" Trinitron System	$5025	33MHz or with Math Chip	$695 / $895
8XLi 19" or 21" Hitachi System	$2765 / $3865	40MHz or with Math Chip	$895 / $1095
8XLi 19" Trinitron System	$3735	50MHz or with Math Chip	$1395 / $1675
8XL 19" or 21" Hitachi System	$2255 / $3355	RODIME Cobra 100 HD	$585
8LC 19" Color Hitachi System	$2125	Cobra 120 HD	$665
ClearVue/GSXL 19" or 21" Sys.	$1285 / $1595	Cobra 210 External Hard Drive	$885
ClearVue/GSLC 19" Gray Sys.	$1125	PLI Infinity 40 Removable	$595
ColorBoard 264/SE30	$575	Infinity 88 Removable	$775
708 + /SE30 or ClearVue/GS30	$645	QuickSCSI Accelerator Card with cable	$475

MacUser Special BÉZIER BP4040 Personal PostScript Laser Printer $1495
(RISC processor, TrueImage, TrueType, AppleTalk, 4ppm)

We are Authorized Dealers for all of the products we carry. All of our products are NEW. Business Leasing is available.

6113 South 380 West, Salt Lake City, Utah 84107 (801) 265-8882

CIRCLE 347 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

Point of Sale

"The POS System that Apple uses!"

★★★★½

POS•IM

This superior system exceeds all the expected POS features and provides the user with reports to make effective sales and inventory management decisions.

For Product and Reseller information, Call: Ensign Systems, Inc.
(801)546-1616 / Fax:(801)546-6490

Inventory Management

CIRCLE 350 ON READER SERVICE CARD

INVENTORY-POS

LARGEST installed Mac U.S.A. base A/R-Billing-Bar Code/Cash Drawer Control-Labels-Auto Vendor Orders-Custom Forms-Features-Reports-G/L Links-5 Inven Modes-Taxes/GST Clerks train FAST—FREE DEMO ShopKeeper PLUS $495 Multiuser6 $995
SHOPKEEPER PUB. INTN'L, Inc.-SPI
3711 Shamrock West-Suite 110A
Tallahassee, FL 32308
USA 904 222-8808 • Canada 800 345-2932

PRINTERS

600 X 600 dpi POSTSCRIPT LIQUIDATION

Starting at: $2495.00

- 7 megs of RAM
- Cannon 8ppm Laser Printer Engine
- Advanced AMD 29000 RISC Processor
- Up to "10" times Faster than the IINT
- ISI (simutaneous PC or Mac Printing)
- Appletalk, RS232, SCSI Interface
- Dual Page Processing

1-800-375-9000 1-817-754-2120

CIRCLE 348 ON READER SERVICE CARD

Print Multipart Forms on Mac

Apple Daisywheel Printer - crisp text and 10-part forms on all Macs. Fast 40 cps. Fixed & proport. fonts. Auto boldface, underline. 15" paper. New $499, Recond. $399 includes ribbon, printwheel, point-&-click printer resource, I/F cable. New sheetfeeder $49, tractor $129. High commercial quality. 90-day guarantee. Quality Discount Computers, Inc.
135 Artist View Drive
Wellington, NV. 89444
(702) 465-2473 (415) 487-8148 (800) 472-7444

SECURITY

Case Lock for the Macintosh

Prevent theft of your expensive hardware:



- Boards • Memory SIMMs
- Internal hard disks

(800) 325-3587 Only $25.95!

Kent•Marsh Ltd.

The Macintosh® Security Experts

P.O. Box 460289 Houston, TX 77056

CIRCLE 349 ON READER SERVICE CARD

CD ROM

Category begins on the next page.

BAR CODING

BAR CODES

- Print bar codes from PageMaker, Illustrator, Quark, Word, etc.
- PostScript Fonts. Generate film masters
- Runs on Dot Matrix, Laser or Lino
- $199 for Code 39 or UPC/EAN
- Complete bar code readers — $399
- 30 day money back guarantee

WORTHINGTON DATA SOLUTIONS 411 Hogan's Street, Santa Cruz, CA 95060

800-345-4220 OR 408-458-9938

ElseWare CORPORATION

BarCode Kit™

Fonts & EPS Utilities for Printing Bar Codes

• POSTNET • UPC •
• Code 39 • 2 of 5 •

All in One Kit: $179.95

COOL BIZ Call ElseWare: (206) 547-9623

CIRCLE 351 ON READER SERVICE CARD

MacUser Marketplace
is a special economical section for product and service listings

BUSINESS

BizPlanBuilder™

Organize your ideas, coordinate your plans — convince others to support you. Intuitive, logical business & marketing plan template on diskette for launching a new product, service, or company. 90+ pages of outlines, headlines, written texts, tables, formatted into 33 MacWrite™ & MSWord™ files.

Follow tutorials, fill in the blanks, edit into a finished plan. 126-page reference includes important info about getting money from banks, the SBA, investors. Integrated financial worksheets in Excel (SYLK) are preformatted; includes detailed Budget, Income Statement, Balance Sheet, Cashflow Projection, Break-Even Analysis. Dazzle your boss, banker or investors. 37,000+ sold! v 4.0 $129 +s/h

"BizPlanBuilder could be exactly what the business doctor ordered... I don't often see credible literature, but in this case, I am a believer. You owe it to yourself and your company to own and use BizPlanBuilder." — Leon Wortman, Software Editor, *Business Marketing*

Leverage Your Time & Macintosh

JIAN 800/ 346-5426 toll-free
415/ 941-9191 worldwide
MC•Visa•Amex 30-Day Guarantee

CIRCLE 352 ON READER SERVICE CARD

CD-ROM

We'll meet or beat any advertised price on CD-ROM products.

EDUCORP 1-800-843-9497



Call for a FREE 384-page Software Encyclopedia! A $4.95 value.

NEC

These new NEC bundles include hardware, driver software, cables, amplified stereo speakers, headphones, and educational, interactive CD software titles. Take advantage of these special savings today!

CD-Gallery as low as $499 (7 CDs & NEC drive)

Get the Illustrated Encyclopedia,TimeTable, World Atlas, Beethoven's 9th, Cosmic Osmo, Desert Storm, & Cinderella (Discis) bundled with the NEC Intersect CDR-36 **#C1977 for only $499**, or bundled with the Intersect CDR 73 **#D1978 for only $769.**



NEC 11 CD-ROM Drive Bundle

Get the Illustrated Encyclopedia,Time Table, World Atlas, Shakespeare, Sherlock Holmes, Birds of America, Mammals, Beethoven's 9th, Cosmic Osmo, Desert Storm, & Cinderella (Discis) bundled with the NEC Intersect CDR-36 **#D1977, for only $575**, or bundled with the Intersect CDR 73 **#E1978, for only $849.**



Bonus 2 FREE CDs! Buy 2 other CDs with any drive bundle on your 1st order and get ClassROOM & World FactBook FREE. A value of $200. Quantities limited. Use code #D2.



1 FREE CD Buy a CD-ROM drive of your choice and get the EDUCORP CD Sampler free. $10 value.

CD-ROM Drives

Your choice of cable, FREE! All drives come with driver software and cable. Specify #982 SCSI to SCSI or #981Mac to SCSI cable.

1981 CD-Tech Porta Drive: 325ms/ 64K buffer $599
Multimedia HANDisc included free w/purchase.
1937 Toshiba XM3301 325ms/64K buffer 699
1931 Chinon CDA-431 350ms/32K buffer 579
EDUCORP CD 2.0 included free w/purchase.
1978 NEC CDR-73 300ms/64K buffer.....679
1977 NEC CDR-36 500ms/64K buffer.....479

Get 7 CD-ROMs for only $199 Buy any drive and get the Illustrated Encyclopedia,Time Table, World Atlas, Shakespeare, Sherlock Holmes, Birds of America, and Mammals for only $199! #1599.

Other Drive Bundles

Intersect CDR-73 Bundle Special
B1978 NEC CDR-73 w/Type Gallery PS 729
C1978 NEC CDR-73 w/Type Gallery PS, Clip Art 3-D, and Image Gallery.....1200

Intersect CDR-36 Bundle Specials
B1977 NEC CDR-36 w/Type Gallery PS 479

CD-ROM Titles

Education

1590 Desert Storm.....33.00
1566 Dictionary of the Living World.....199.00
1691 FindIT Webster w/Pronunciation 69.95
1605 Japanese for Everyone 279.00
1261 Learn to Speak Spanish v1 .....79.95
1204 Learn to Speak French v1 .....79.95
1361 Lingua-ROM II.....599.00
1570 LifeSaver - Learn first aid 99.00
1584 The Orient.....149.00
1666 Peter Rabbit (Discis Books) 74.95
1626 Svinga: Zimbabwe Encyclopedia.....74.95

Desktop Publishing

1625 Aquatic Art 149.95
1567 Classic Art Business v.1 .....349.00
1389 Desktop Publishing CD 2.0.....99.95
1587 Donatelli Portfolios: Lingerie 129.95
1338 Image Club Art/TypeVendor 59.95
1628 ImageCELS: 1,100 seamless textures..399.00
1581 International Graphics Library.....299.00
1585 Ocean Imagery 99.00
1594 Photos On Disk 179.95
1653 Wraptures: 120 seamless textures 95.00

Sound Effects/Music

1347 Beethoven's 9th.....79.95
1589 Brahms: A German Requiem 55.00
1565 Grooves.....99.00
1354 Magic Flute: A 3-CD Set.....55.00
1582 Sound/FX.....199.00

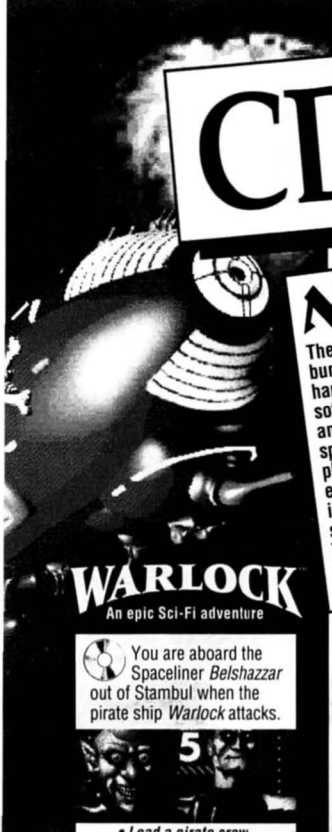
Entertainment/Consumer

1339 Cosmic Osmo 59.95
1818 EDUCORP CD Sampler 9.95
1327 Exotica-ROM 2.0 .....199.00
1598 Macworld Superstacks.....15.00
1803 Verbum Interactive 49.95
1381 Virtual Valerie 79.95

Shareware CD-ROMs

1300 EDUCORP CD-ROM 6.0: New-1 gigabyte..199.00
1610 ClassROOM* 49.95
1611 GameROOM*: over 750 games.....49.95
1609 Sound Machine* 49.95
1330 Clip Art 49.95
*Indicates that software is contained on EDUCORP CD 6.0

Over 200 titles in stock.



WARLOCK

An epic Sci-Fi adventure

You are aboard the Spaceliner *Belshazzar* out of Stambul when the pirate ship *Warlock* attacks.

• Lead a pirate crew

Captured and taken aboard the pirate vessel, you are about to embark on a journey beyond imagining. A journey across the galaxy in the ultimate adventure...



• Charm a stellar beauty

Spaceship Warlock will astound you, thrill you, and rivet you to your seat!

3-D graphics and interactive animations you can experience again and again.

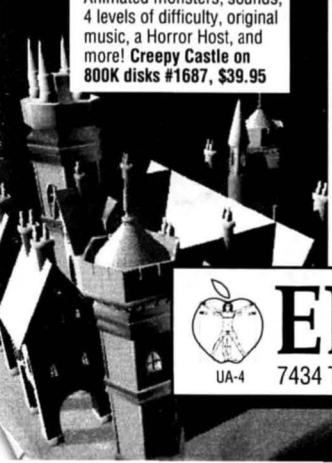
"Just buy this disc!"
Jerry Borrell *Macworld*

Spaceship Warlock CD-ROM #1583, $89.95

CREEPY CASTLE

New from Reactor! Many years ago, the mad doctor and his creepy crew moved into a dilapidated castle. Now they've overrun the place. The ruin is known as *Creepy Castle*. Dare you enter?

Animated monsters, sounds, 4 levels of difficulty, original music, a Horror Host, and more! **Creepy Castle on 800K disks #1687, $39.95**



800K disks as low as $4.99 each

Shareware Disks

Individual disks only $6.99 ea. Buy 5 for $5.99 ea, or buy 10+ for $4.99 ea.

4414 MacConcept
3-D graphics program.

2129 ResEdit/CICN Editor
Edit and manipulate all resources, from icons and dialog boxes to menus.

2128 Essential INITs
Contains MacPassword Demo for security and virus protection, INIT CDEV, SCSI Probe 3.0.

4601 SoundMaster 1.6.4
Control all Mac sounds: startup, restart, shutdown, and more! Works with System 7.

4043 Startup Screens
29 terrific startup screens.

2122 Virus Stompers
7 virus utilities.

4271 Board Games
Backgammon, 3D checkers. and 11 others.

7204 Clip Art Stack
Over 490 high quality bitmapped clip art.

4270 Thinking Games
11 games to stimulate your mind.

4034 Clip Art Extravaganza
100 high quality bitmapped clip art.

3431 Preschool Education
8 programs including a great dot-to-dot construction set, fun math tutors and more!

4612 Speech Synthesis
MacinTalk and much more.

5-disk sets $24.95 each

1706 System 7 Tools- NEW!
7 True Type fonts, utilities, 80 color icons, SCSI Probe, ResCompare, INITLoader, more!

1151 Best of Games v.1 31 fun games.

1224 Best of EPS Clip Art
100 high resolution EPS pictures.

1155 Best of Education v.1
60 of our best educational programs.

1709 Type 1 Fonts Set
40 Adobe Type Mgr compatible Type 1 fonts.

EDUCORP® 1-800-843-9497

See us at the San Francisco MACWORLD Expo. Booth #1507

UA-4 7434 Trade Street • San Diego, CA 92121 • Orders: 800-843-9497 • Info: 619-536-9999 • FAX : 619-536-2345

CIRCLE 353 ON READER SERVICE CARD

CLASSIFIED

BUSINESS

TELEMAGIC
SOFTWARE FOR SUCCESS IN BUSINESS

"The runaway leader in sales, marketing and telemarketing software." (Datapro Reports)

"...better than any similar sales management tool we've seen." (InfoWorld)

TELEMAGIC is so easy to learn and use, you'll make more sales immediately!

Runs on all popular computers, laptops, and networks.

Recall Tickler, Appointments, Formletters, Auto Dial, Reports, Order Entry, and More.

Remote Control International
800-992-9952
3928 Pascal Ct #130 Carlsbad CA 92008

CIRCLE 354 ON READER SERVICE CARD

MacUser Marketplace
To place your ad call
(212) 503-5115
or (800) 825-4ADS

INVOICING/ORDER PROCESSING
A complete database solution for order processing business ● Easy order entry ● Invoicing, Packaging slips, Mailing labels, Billing ● Inventory Control ● A/R ● UPS ● Credits/Returns ● Commissions/Royalties ● Extensive reporting on inventory, sales, advertising ● SuperMOM Demo $15 ● + $3 s/h
National Tele-Press
P.O. Box 98
Newton Centre, MA 02159
1 (800) 448-0988

EDUCATIONAL

GRADE MACHINE™
Gives you FAST full-screen editing of grades, weighted assignments & categories. Style sheets help customize reports. Each class file holds 250 students, 250 assignments, and 10 grading periods. Money back guarantee. NOT copy-protected! Only $79 + $5 S & H. System 7 and AppleTalk compatible.
Misty City Software, Dept. MU2
10921 129th Place N.E.
Kirkland, WA 98033
(206) 828-3107 (voice/fax)

EDUCATIONAL

MORE TEACHING, LESS PAPERWORK – SAVE $145

ClassMaster
Enter student profiles, grades, & attendance. Graph class & student performance. Print reports. Import/export data.
1991 *Technology & Learning Mag.* Award of Excellence.
"...one of the most impressive classroom management programs that we've seen." *Electronic Learning 5-6/91*

MakeTest
Store questions. Print tests, answer keys quickly. Paste graphics, equations. Hand-pick or randomly select questions. Preview tests.
"...best way I have seen to store and categorize test questions." *Macworld 9/90*
1-800-669-6574

Plan to Teach
Do long-range, weekly & individual lesson plans. Make seating charts. 2 free books on teaching included.
New Year Special til 1/31: All 3 for $199 (save $145)
Money-back guarantee
Toll-free support
MOUNTAIN LAKE SOFTWORKS

415-752-6515 • Fax: 415-752-6506 • 298 4th Ave. #401, San Francisco, CA 94118

CIRCLE 355 ON READER SERVICE CARD

THE *ABSOLUTE BEST* IN TESTING!

LXR•TEST™ 4.1 is the most advanced and complete testing system available for your Mac.
- Item banking
- Test generation
- Scoring & analysis
- Paper & interactive
- Mark reader support
- Commercial banks
- Character styling w tabs
- Full graphic placement
- Database selection
- Compatible gradebooks
- Student mastery
- Spelling checker

Highest rated software available in various editions to match your testing needs. Fully guaranteed. Pricing from $149. For complete brochure & free preview disk, call, write, or fax:
Logic eXtension Resources
9651-C Business Center Drive
Rancho Cucamonga, CA 91730
(714) 980-0046 Fax: (714) 987-8706

CIRCLE 356 ON READER SERVICE CARD

EMULATION

IBM 3164 and VT100 File Transfer and Terminal Emulation for the MAC

FREE TRIAL

MAC TO PC • MAC TO MAC • MAC TO MAINFRAME

800-262-RCOM

CONNECT TO THE IBM WORLD

CVI
Computer Vectors, Inc.
Data Communications Products

CIRCLE 357 ON READER SERVICE CARD

ENGINEERING

McCAD EDS
the leader in
Integrated Electronic Design
Schematics Simulations PCB Layout Autorouting
Call or write for free demos.
VAMP Inc. 6753 Selma Los Angeles, CA 90028 213-466-5533

CIRCLE 358 ON READER SERVICE CARD

asd Professional CAD Symbol Library

Over 3,000 CAD Symbols in One All-Inclusive Package



Architectural (Residential & Commercial), Interior Design & Site Planning, The "Plumbing & Heating Supply House", The "Hardware Store", The "Electronics Shack", Welding, General Drawing Aids, Cartographic, 180+ Page User's Manual, And Much More, All for $149.95!

Compatible with Claris CAD™, MacDraw II™, PowerDraw™ and Canvas™

Advanced System Design, Inc.
1010 Stagecoach Blvd., P.O. Box 3131
Evergreen, Colorado 80439
(303) 674-2222 to Order

(Specify Claris CAD, MacDraw II, PowerDraw or Canvas Version)

CIRCLE 359 ON READER SERVICE CARD

CIVIL • STRUCTURAL • SURVEYING •

NEW! LANDview- for CONTOURING & TERRAIN MODELING

LANDesign- COGO/Surveying
- Data Collector and Export Modules available
- From US$595 + shipping

FRAME mac- Structural Analysis
- Frames, trusses, beams
- Full graphics
- US$395 + shipping

Money-back guarantee. Free support.

Other programs and products:
•Deed plotting •Beam sizing •Structural design
•Road design •Section tables •Structural properties

For free catalog or info, tel: (416) 738-4601
COMPUneering™ fax: (416) 738-8207
113 McCabe Crescent
Thornhill, Ontario L4J 2B6
CANADA

CIRCLE 360 ON READER SERVICE CARD

Printed Circuit Board Design.

Protel's professional PCB design systems conform fully to Mac® human interface guidelines yet provide all the capabilities found in our popular 'PC' versions, proven by thousands of designers around the world.
With user-definable Metric and Imperial snap grids. All dimensions are displayed in the selected measurement system. System resolution is 1 mil (.001 inch or .025 mm). Includes support for all Mac® compatible devices including high resolution imagesetters, pen plotters, Gerber® photoplotters and N/C drill file.
30 day money-back guarantee.

Easytrax™ *$495.00*
Stand-alone PCB layout system for through-hole designs, with pad-to-pad autorouter. Includes component library.

Autotrax™ *$995.00*
Netlist import from DesignWorks™ and other schematic capture packages. Auto component loading, pad-to-pad autorouter and design rule checking. Full SMD support. User definable tracks, pads, vias, etc. Global editing.

Autotrax Extended *$1495.00*
All standard version features, plus full auto component placement and autorouting capabilities.

Protel Technology Inc.
50 Airport Parkway
San Jose CA 95110
Call for **FREE** demopack
(800) 544-4186

CIRCLE 361 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

the best stupid mac tech since talking Moose - Bob Levitus (Dr. Mac)

Madness RAGE! 2.0

Have you ever wanted to shoot your MAC?!

•Uzi •Glock 9mm •20 ga. Shotgun
•12ga. Police Assault Shotgun
•.44 Magnum •Moof .45?!

Phone, FAX or Mail your order!

Mc John
5800 Strand, Suite 5
Manhattan Beach CA 90266

$19.95 + ($1 S&H)
Check • Visa • M/C
** Money Back Guarantee **
Ph (310) 546-5837
fax (310) 546-5437

Everyone should have a copy of Madness!

CIRCLE 362 ON READER SERVICE CARD

HOW TO CREATE CONTOURS...

Use ContoursPro to generate 2D survey maps or 3D surfaces. ContoursPro is compatible with:
- AutoCAD
- Vellum
- Canvas
- MiniCad+
- MacDraw II
- ClarisCAD



or any program that reads 2D/3D DXF or PICT. Order Today! 301/461-9488 Fax: 301/461-9345 VISA/Mastercard. 30-day money back guarantee.
$495.00

CONTOURSPRO
Graphsoft 8370 Court Ave., Ellicott City, MD 21043

CIRCLE 363 ON READER SERVICE CARD

BodyCello
Adults Only Catalog

NEW!

BodyCello 5-disk Sampler Set with 25 models in full color including picture viewer plus FREE catalog.



Part #2-10, only $39.95 plus $4.75 s. & h. *OR* Send $5.00 to receive your BodyCello catalog.

Send your order today to:
BodyCello
P.O. Box 910531
Sorrento Valley, CA 92191

CIRCLE 364 ON READER SERVICE CARD

Tell Your Source!
I Found it in
MacUserMarketplace

CLASSIFIED

ENTERTAINMENT/GAMES



For the Businessman on the "Go"!

"Learning to play Go well is tantamount to a senior-level course in strategic thinking." United Feature Syndicate 12/12/90

"[Go Junior] Best introduction to Go yet developed." MacWorld 2/91

Toyogo, Inc.
P. O. Box 25460-U,
Honolulu, HI 96825-0460

(800) TOYOGO-9
(808) 396-4126 fax **$35** Go Junior **$69** Go Master **$139** Deluxe Toolkit + **$6.50** S&H

CIRCLE 365 ON READER SERVICE CARD

FONTS

All world alphabets. Type-1 Postscript & Truetype Fonts
All-Europe IPA VNam Grk. Russ...Georg. Armen. Chess Ethiop.
Hindi Sanskr.Guj.Gurm.Beng.Kann.Tel.Mal.Tamil Sinhala Burm.
Thai Lao Khmer; Script Managers Hebr.Arab.Pers.Pashto Mongol
Chin. Jap. Kor. & Indic. Full Catalog $5 Ecological Linguistics Box 15156 Wash. DC. 20003

CIRCLE 366 ON READER SERVICE CARD

PRECISION TYPE
47 MALL DRIVE
COMMACK, NY 11725
516 • 864 • 1024
1 • 800 • 248 • 3668

AUTHORIZED DEALER FOR:

ADOBE	LETRASET
AGFA	LINGUIST
ALTSYS	LINOTYPE
BEAR ROCK	MONOTYPE
BITSTREAM	PAGE STUDIO
BRODERBUND	THE FONT CO.
CASADY&GREENE	TREACYFACES
IMAGE CLUB	...AND OTHERS
LANSTON	PLUS CD-ROMS

OVER 10,000 fonts

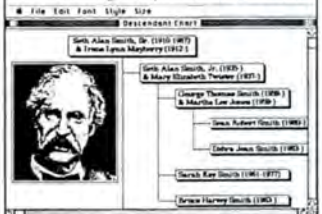
VISA

CIRCLE 367 ON READER SERVICE CARD

GENEALOGY

New! version 3.0 **REUNION**
the family tree software
★★★★½ *MacUser* Oct '90

Reunion quickly records and links family tree information. Version 3.0 calculates relationships, supports hi-res color & grayscale images, creates large graphic charts, family group records, family histories, mailing lists, questionnaires, and more.



Call, write, or FAX for brochure & sample charts.
LEISTER PRODUCTIONS
14 Hill Blvd., Mechanicsburg, PA 17055
717-697-1378 — FAX 717-697-4373

PostScript® Fonts
Mac/PC
All the popular libraries to the hard-to-find.
Adobe, Bitstream, Linotype, Monotype,
E-F, Giampa Textware, ITC, The Font Bureau,
Treacyfaces, etc. Disks to CD-ROM.
800.942.9110

FONT HAUS

FontHaus is an authorized reseller for more than 20 PostScript libraries, including our own exclusives. Fonts are discounted. Next-day delivery available. AmericanExpress accepted.
Fax: 203.849.8527

CIRCLE 368 ON READER SERVICE CARD

GRAPHICS

800 736-1567 EPS
OVER 275 ANATOMICAL IMAGES, MEDICAL INSTRUMENTS & ICONS
175.00
MAC & PC CK / MC / VISA / AE
MediClip®
MEDICAL CLIP ART
ALPHA Telecommunications
1245 16th St., Ste. 100, Santa Monica, CA 90404-1239

CIRCLE 369 ON READER SERVICE CARD

GRAPHICS

AdArt. CLIP ART FOR ADVERTISING
Encapsulated Postscript Images

LOGOS & TRADEMARKS, 1, 2, 3, 4 & 5
INT'L SYMBOLS & ICONS, 1 & 2
FLAGS OF THE WORLD
VINYL CUTTER'S COLLECTION
BUSINESS SYMBOLS COLLECTION
SAFETY & PACKAGING COLLECTION
RECYCLED ART

800 255-0562
Innovation Advertising & Design
41 Mansfield Ave • Esser Jct., VT 05452

CIRCLE 370 ON READER SERVICE CARD

Fax us your Logo

We'll return-fax you a quote to create a high quality EPS file in Illustrator, Freehand and PICT format.

NORTHERN LIGHTS COLLEGE

Mac or MS-DOS
MacPOWER
FAX 800-765-4504 Voice (609) 653-0696
P.O. Box 109
Linwood, NJ 08221

CIRCLE 374 ON READER SERVICE CARD

MAPS Illustrator, FreeHand, MacDraw II
World
Continents
Countries
USA

Professional Quality Maps for Desktop Publishing and Graphic Design

For Your FREE Catalog call:
800-334-4291

CIRCLE 371 ON READER SERVICE CARD

3G Graphics IMAGES WITH *Impact!* EPS FORMAT
NEW! PEOPLE 1 Our Best Yet!
Versatile New Art for Business, Industry, Healthcare, Sports & MORE! ASK FOR FREE CATALOG!



Suggested Retail: $199.95
3G Graphics, Inc.
11410 N.E. 124th St.
#6155-B
Kirkland, WA 98034
(206) 367-9321
800-456-0234
SPECIAL INTRO OFFER

CIRCLE 375 ON READER SERVICE CARD

ARTBEATS
Full Page Backgrounds (EPSF)
Improve your ads, flyers, posters, brochures...-anything you print!
Each volume-$99.95 CD-ROM-$499
800-444-9391 or 714-881-1200
ARTBEATS, Box 20083, San Bernardino, CA 92406



CIRCLE 372 ON READER SERVICE CARD

LANGUAGE TOOLS

NEW!!
68000, COP800, PIC16Cxx versions!

µASM™ Cross Assemblers for the Macintosh™

- TEXT EDITOR, CROSS MACRO ASSEMBLER, AND COMMUNICATIONS FACILITY IN A COMPLETE INTEGRATED DEVELOPMENT ENVIRONMENT
- S OR HEX FILE OUTPUT DOWNLOADS TO MOST EPROM PROGRAMMERS

AVAILABLE FOR MOST 8-BIT MICROPROCESSORS AND 68000/010. CALL OR WRITE FOR TECHNICAL BULLETIN. **30 DAY MONEY BACK GUARANTEE.** MC/V/AE

$149.95 ea plus S/H

Micro Dialects, Inc
DEPT. MU, PO BOX 30014
CINCINNATI, OH 45230
(513) 271-9100

CIRCLE 373 ON READER SERVICE CARD

MacUser Marketplace
For additional information call Account Representatives:
Dennis Leavey
Thomas Koletas
Laura Salerno
Lawrence Johnson
Call
(212) 503-5115
or
(800) 825-4ADS

MacUser Marketplace
To place your ad call **(212) 503-5115** or **(800) 825-4ADS**

CLASSIFIED

LOTTERY

MacLotto® for all Mac's
DOS Lotto® for all PC's
• 29 Jackpot Winners Have Won Over $71 Million Dollars!!...
• $23,460,000 6/49 FL 3/18/89
• $2,780,000 6/49 CA 6/24/89
• $2,141,650 6/42 OR 5/6/89
• $1,429,515 6/39 AZ 6/15/88
• $1,000,000 6/44 WA 6/1/88
• $6,530,000 6/49 FL 7/15/89
Dramatic Odds Improvements!!!
Every Lotto & Keno on Earth!!
Based on OUR Patent #4,712,796

YES! System 7

$115.5 Million Dollar Lotto JACKPOT was CRACKED!!
Using Odds Improvement Multiplication™
• Penna. Doctor Wins $8.2 Million Dollars
• California Engineer Wins $195,821.00!
• Canadian Woman Hits BIG In Lotto 6/49
• Michigan Judge Hits 5/6 for $2,500.00 !!
• Conn. Teacher Wins $7,335 - 1st Time!!

FREE! With Order..
• The MacLotto® Lottery PRIMER Book!!
• Lottery Players Magazine - 3 Months!
• Complete MacLotto® Guided Tour on Disk!!

$99 US Math Labs,18 Main St Concord, Ma. 01742
FAX 508-553-9193 Direct 617-431-5922
MC/VISA 800-PLAY-SIX

RELIGION

10th Anniversary Celebration!



Ten years at the top! Version 5.0 VERSE SEARCH now offers full mouse support, unlimited windows and instant access to every word or verse. Our family of Bible study products includes: NIV, RSV, KJV or NKJV text, Bible Concordance, Bible Dictionary, Thesaurus, Chain References, Personal Commentary, Greek / Hebrew transliterators, Topical Bible, Chronological Bible. Memory resident VERSE TYPIST transfers verses directly to your word processor. Our $5 demo disk shows why we have sold more products than any other Bible program!

Bible Research Systems • 800-423-1228
2013 Wells Branch Parkway #304 • Austin, Texas 78728
Tech Support (512)251-7541 Call for a free Catalog. Satisfaction Guaranteed.

CIRCLE 380 ON READER SERVICE CARD

MUSIC/MIDI

VERSION 2.3
PRACTICA MUSICA



-MacUser Magazine, August 1990
•Teaches intervals, chords, melody, rhythm
•Interactive staff notation •Saves scores
•High quality sound •MIDI compatible
•Historical & computer-generated melodies
•Custom ear training melodies
•Includes textbook •Beginners to advanced
$125.00 • Call Toll Free 800-445-4866
ARS NOVA
BOX 637, KIRKLAND, WA 98083

CIRCLE 376 ON READER SERVICE CARD

MacUser Marketplace
To place your ad call
(212) 503-5115
or (800) 825-4ADS

PUBLIC DOMAIN

FREE
MAC SOFTWARE
CATALOG
24 Pages! ASP Member
SOFTSHOPPE, INC.
P.O. BOX 3678
ANN ARBOR, MI 48106
Tel: (313) 761-7638
FAX: (313) 761-7638



Toll-Free—24 Hrs.
1-800-829-BEST

CIRCLE 378 ON READER SERVICE CARD

REAL ESTATE

PROPERTY MANAGEMENT FOR MACINTOSH
Comprehensive software for managing residential and commercial properties, and condo associations. Includes GL, AP, AR, check writing, recurring charges and expenses, and over 70 financial and management reports. Over 3,000 property management systems sold! Prices range from $595.00 to $2495.00 (networking). Also available in Windows and MS-DOS versions.
1-800-272-4663
GoodSoftware CORPORATION

CIRCLE 379 ON READER SERVICE CARD

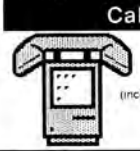
SHAREWARE

• FREE •
8 ASSORTED PACKAGES OF OUR BESTSELLING SOFTWARE FOR MAC®
1. GAMES
2. EDUCATION
3. HYPERCARD
4. BUSINESS
5. RELIGION
6. FONTS
7. CLIP ART
8. UTILITIES
PAY ONLY $5.00 SHIPPING
• CREDIT CARDS ONLY •
EACH PACKAGE CONTAINS 6/3.5" DISKS
SMC
SOFTWARE PUBLISHERS
619 931-8111
EXTENSION 511

CIRCLE 381 ON READER SERVICE CARD

NETWORKING

New for System 7.0 !!
Call Me!



ORDER TODAY!!!
ONLY $49.95
(include $3.00 S&H. COD, VISA & MC)
PO Box 9326
Mclean, VA 22102
1-800-445-4997

Call Me! lets you use your Mac like a network Intercom, leave messages, forward notes, record and play standard sound files, and more. Requires LC, IIsi or Mac with Compatible Microphone.

Call Me! PeCox (Software)

CIRCLE 377 ON READER SERVICE CARD

Tell Your Source!
I Found it in
MacUser Marketplace

Great Performances
Demand an Encore

To find out how you can have your article or review elegantly reprinted**
call or write today:

Claudia Crichlow
Reprints Manager
Ziff-Davis
Publishing Company
One Park Avenue
New York, NY 10016,
212-503-5447

**Minimum quantity 500 reprints.

MacUser MARKETPLACE CLASSIFIED

STACKWARE

MacFlash Cards

THE Software Toolworks

Effective
Expandable
Affordable

Vocabulary tools for all Macintosh computers:

French *German*
Russian *Spanish*
Latin *Czech*

Over 2000 foreign words and 1000 more foreign synonyms. Only $25 each. Compare our prices and save! ORDER TODAY!

Cyrillic & Czech fonts available!

Call/write for more information:
The Language Quest Software Co.
101 First Street Suite 428
Los Altos, CA 94022

800-622-3574 or 415-949-2876

CIRCLE 382 ON READER SERVICE CARD

STATISTICS

NEW

Power Designed To Fit Your Needs

MINITAB offers a broad range of statistical functions, quick and efficient menu interface, and command option.

- Basic & Advanced Statistics
- DOE
- Data Editor
- Control Charts for SPC
- Hi-Res Graphics

Mac models except 128k, 512k & 512e

CALL 800-448-3555

MINITAB STATISTICAL SOFTWARE

Minitab Inc., 3081 Enterprise Drive, State College, PA 16801-3008 USA

CIRCLE 383 ON READER SERVICE CARD

FOUND A BARGAIN?

Let Your Source Know You Found it in

MacUser Marketplace

MISCELLANEOUS/ ACCESSORIES

Pack your LC or SI in seconds!



Holds LC or SI with 12" monitor, keyboard, mouse and cables.

WEST RIDGE DESIGNS
For a dealer near you call toll free
1-800-548-0053
1236 N.W. Flanders, Portland, OR 97209

CIRCLE 385 ON READER SERVICE CARD

DUST COVERS

ALL FABRIC



- Heat Ventilating, will not become stiff or crack with age! • Easy to use • Machine Wash & Dry
- Highest Quality, Custom Fit
- All makes & models! • Custom orders! • Available in Gray, Tan, Navy, Hoya, Red or Brown
- 100% Satisfaction Guaranteed!
- Outstanding service since 1983!

CO-DU-CO Computer Dust Covers
4802 W. Wisconsin Ave., Milwaukee, WI 53208
800-735-1584 414-476-1584 • 476-9329FAX

CIRCLE 384 ON READER SERVICE CARD

DATA CONVERSION SERVICES

TAPE/DISK CONVERSIONS

Conversion services for your MacIntosh to over 3000 computer systems. Capabilities include converting to or from:

* Magtapes *Mini & Micro Computers
* Word Processors *Typesetters

Data can be supplied in over 450 software packages. OCR scanning also available.
Pivar Computing Services, Inc. #MU
165 Arlington Heights Rd.
Buffalo Grove, IL 60089
800-CONVERT

MacUser Marketplace

To place your ad call
(212) 503-5115
or **(800) 825-4ADS**

DESKTOP PUBLISHING SERVICES

Universal CAD Graphics Importer for Macintosh Publishing

Having trouble getting editable CAD images into your Mac publishing software?

CAD to Mac™ moves images from virtually any workstation or PC based CAD system which supports HP plotters and converts them to editable PICT format.

Eliminate cutting, pasting or redrawing

- size, rotate, and print image before translation
- disk compatibility not required
- serial transfer software and cable included
- $495 plus $8.00 S&H

CAD to Mac

CELECT SOFTWARE
2630 Glendale Milford Road
Cincinnati, Ohio 45241-3187

To order
Call 513-733-6300
(fax) 513-733-6365

CIRCLE 386 ON READER SERVICE CARD

PostScript Output: Reflex or Film

Lowest Prices in USA & No Bump in $ for graphics • Next Day Air $3 or less • 1200/2400 Output • FREE Quality Control Kit • High Speed Modems Sup. 24 hr/day • Flexible Monthly Rates • Sp. Rates to Schools • Full Color Service • Cost Effective up to 1500 ft/mo • Off. Hrs 9 am to 11 pm.

ENTERGRAPHICS
RR1 356A Salt Point Turnpike
Poughkeepsie, NY 12601
(800) 473-4108, modem (914) 473-5719

SLIDE IMAGING SERVICES

SlideImagers™

$4.95 POSTSCRIPT SLIDES
All Major Mac and PC Packages

Slides • Overheads • Color Prints

Canon CLC 500 Color Lasers
Beautiful 400 dpi color prints...directly from your files!

22 Seventh Street **1-800-232-5411** Atlanta, GA 30308

CIRCLE 387 ON READER SERVICE CARD

We Image

MAC SLIDES
MAC
MAC
MACINTOSH
MACINTOSH
MACINTOSH ONLY
MACINTOSH ONLY

We're MAC SLIDE EXPERTS

That's what makes us so good!

In NY State Call
212.989.2727
Outside NY State Call:
800.445.9002

Nextwave Productions NYC, NY

$5 Non-PostScript, $10 PostScript
Volume discounts available

CIRCLE 388 ON READER SERVICE CARD

SLIDES

TRUE ADOBE POSTSCRIPT® SLIDES
35mm, 4X5, 8X10 Transparencies

- 4K/8K Resolution
- All Major Mac/PC Software
- Canon Color PostScript®
- Volume Discounts
- Lino Output

Laser Express®

1-800-68-LASER ext. 12
5 2 7 3 7
7826 Convoy Court, San Diego CA 92111

CIRCLE 389 ON READER SERVICE CARD

24 Hour Support/ Same Day Service



(800) 253-1920
BBS (508) 392-0317

Call For **50% Off** Your First Order Or Information On Our **FREE** Aldus Persuasion

ImageAbility

CIRCLE 390 ON READER SERVICE CARD

CLASSIFIED

MacUser MARKETPLACE

SLIDE IMAGING SERVICES

Tell Your Source!

I Found it in **MacUser Marketplace**

SLIDE OUTPUT Mac/PC FROM $3

Solitaire® film recorder, slide dupes, overheads, large format. 24 hour BBS. Over 100 programs supported.

Elegant Graphics
750 Princeton, P.O. Box 774607
Steamboat Springs, CO 80477
(303) 879-4334, BBS 879-5210

CIRCLE 391 ON READER SERVICE CARD

MacUser Marketplace
To place your ad call
(212) 503-5115
or **(800) 825-4ADS**

SUPPLIES



reconditioned **TONER cartridges!**
for laser printers & Canon PC Copiers
BETTER THAN NEW!
- 20% MORE TONER
- DARKER PRINT
- 100% GUARANTEED

From **$44.95**
We buy empties
call for brochure
800-426-8196
Willow Products Corp.
3857 Willow Ave, Pgh, PA 15234
WILLOW

CIRCLE 392 ON READER SERVICE CARD

P.C. Copier & Laser Printer Owners



TONER SERVICE COMPANY
UPS To
6827 S. Broadway
St. Louis, MO
63111

We Buy Empties - Call
Ricoh Engine Toner $49.95/Case
Deskjet Refills - $18.99/Twin Pack
(314) 352-8667
800-88-TONER
QUANTITY DISCOUNTS AVAILABLE

CIRCLE 393 ON READER SERVICE CARD

JET FILL for DESKWRITER

REFILL YOUR INK CARTRIDGES FOR HP DESKWRITER FOR 1/2 THE PRICE SAVE SAVE

MINIMUM ORDER 4 REFILLS FOR $8.95 EA. PERMENENT INK, BLACK, BLUE, RED, GREEN, OR BROWN, EASY TO DO. FREIGHT PREPAID
DMS 1-800-662-7466
1-508-683-2325 FAX 1-508-975-5232

CIRCLE 394 ON READER SERVICE CARD

Great Performances



Demand an Encore

Let us take your article to its highest level of marketing potential with a reprint!

To find out how you can have your article or review elegantly reprinted** on 80 lb. paper stock, in 4-color, 2-color or 1-color, call or write today:
Claudia Crichlow—Reprints Manager;
Ziff-Davis Publishing Company,
One Park Avenue, New York, NY 10016, 212-503-5447.

**Minimum quantity 500 reprints.

MacUser MARKETPLACE

BUSINESSCARD

MacUser's BusinessCard section is a forum for innovative, hard-to-find and low-cost MAC products and services. Ads are listed by product category and include Reader Service numbers to allow fast, easy response.

RATES:
1 issue–$420, 3 issues–$405, 6 issues–$395, 12 issues–$380.
Multiple-ad per issue rates also available.
Prepayment must accompany each insertion.
AMEX/VISA/MC welcomed.

AD FORMAT:
MacUser will design and typeset each BusinessCard ad. Advertisers should furnish typewritten copy. Ads include: 1) Headline (1 line, initial caps=30 characters max, all caps=25 characters max), 2) Descriptive copy (5 lines, 225 characters max), 3) Company name (same specifications as headline), and 4) Address and telephone number (2 lines, 40 characters per line). No logos, artwork or camera-ready ads. Publisher reserves the right to edit supplied copy to meet section specifications.

DEADLINES:
MacUser is published 12 times a year.
The BusinessCard closing is approximately two months prior to issue date.
Please send copy and payment to: MacUser BusinessCard, One Park Avenue, 3rd Floor, New York, NY 10016, ATT'N: Paul Fusco.
For more information, call Paul Fusco at **800-825-4237** *or* **212-503-5866, FAX: 212-503-5860.**

HARDWARE/COMPUTER SYSTEMS

APPLE-CPUS-APPLE-PRINTERS
- COD Purchasing at any volume
- High inventory at all times
- Selling Direct & indirect at any volume
- Exporting & importing at any volume
- Our high volume makes our low price possible

Gulf Technology
Los Angeles, CA
818-785-2800 FAX: 818-908-5334

CIRCLE 432 ON READER SERVICE CARD

DATA RECOVERY SERVICES

MAC DATA RECOVERY SPECIALISTS
Your Data is important. Let the Company that specializes in SCSI Data Recovery and Hard Drive Repair provide you with expert service. CPR has been recognized in many computer pubs as a leader in SCSI Data Recovery.

Computer Peripheral Repair
7570 S. US Hwy 1 Hypoluxo, Fl 33462
800-765-9292 407-586-0011 (FAX) 582-7921

CIRCLE 433 ON READER SERVICE CARD

INSURANCE

Insure Your Computer
SAFEWARE's Computers insurance coverage provides replacement of hardware, media and purchased software. As little as $49 a year covers theft, accidents, power surges and more!
Call TOLL FREE 1-800-848-3469

Safeware The Insurance Agency Inc.
PO Box 02211 2929 N High St
Columbus, OH 43202 800-848-3469

CIRCLE 434 ON READER SERVICE CARD

PRINTERS

LOW COST PRINT SOLUTIONS
Specialists in laser printing, low cost, hi-res B&W printers by QMS, NEWGEN, TEXAS INST. Color printers by QMS, Brother, SEIKO From, $4499. Used printers bought, sold, traded.
We guarantee best pricing available.

MICRO-MANIA
246 Cummings Park Woburn, MA 01801
617-932-3355 FAX:617-932-9113

CIRCLE 435 ON READER CARD

SCANNERS

Scan 3D With Your Hand Scanner
Scannbox Half-Page is an accessory for hand scanners which enables the scanning of small objects. Compatible w/fully-elevated scanners by: Logitech/Marstek/CompletePC/Caere. $24.95+ $3s/h. CA Res add tax. MC/VISA Dealers wanted.

FACILIUM
8410 El Camino Real, Suite X
Atascadero, CA 93422 PH/FAX (805) 461-5530

CIRCLE 436 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

JOB COST / TIME BILLING
Components, highly rated (MacUser Oct. '89, Oct '91) Object-Oriented accounting series. New JC/TB module is ideal for Architects, AD Agencies, Engineers, Designers and Law Firms. G/L, A/R & A/P also. From $795/module.

SATORI SOFTWARE
2815 Second Ave. #295, Seattle, WA 98121
(206) 443-0765

CHECKS FOR QUICKEN & MYM
Continuous, laser & wallet size. Pacioli, Rags to Riches, Money and many more. $29.95 for 250 plus shipping. M/C, VISA. Send voided check W/starting number. Software compatible forms available.

COMPATIBLE FORMS & CHECKS
Box 669324 Charlotte, NC 28266
(800) 654-9044 Fax (704) 393-7874

CIRCLE 438 ON READER SERVICE CARD

BUSINESS

POS/OE 4 MAC™ Software
For Retail, Wholesale, Mailorder, Mfg., fully integrated 4D® based Accounting • POSE•OE •Inv Control Customer Tracking, Credit Card Processing, Barcode Std/Custom Reports, SIngle/Multi-User Live Demo • Reseller programs

E.E.S. COMPANIES, INC.
2 Vernon St. #404 Framingham, MA 01701
Tel: (508) 653-6911 Fax: (508) 650-1872

CIRCLE 439 ON READER SERVICE CARD

Automated Employee Scheduling
SWING SHIFT™, the premier employee scheduling system for the Mac, has been upgraded to v2.0 800% faster, custom Work Patterns, full year scheduling, and balloon help are only a few of the many enhancements. ORDER NOW $595.

COMPUTED DESIGNS
P.O. Box 802 Temple City, CA 91780
818-287-5496 FAX: 818-447-8493

CIRCLE 440 ON READER SERVICE CARD

EDUCATIONAL

GOLF & TENNIS SOFTWARE
Lower your golf score with Golf teacher. Package includes GOLF Teacher, GolfArt (clip art images in HYPERCARD & MacPaint formats) & golf manual. Tennis package also available. $59.95 each. Requires HARDDRIVE and HYPERCARD.

FYI Publishing
P.O. Box 150661, DEPT 32 FT. Worth, TX 76108
817-599-3362

CIRCLE 441 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

Athletic Scheduling Software
Athletic Scheduling Software for Apple Macintosh now available. Schedule leagues or tournaments, seeded or round robin, even facilities all without conflict. Stat. Management Software also available for most sports. Works for any sport.

Amalgamated Softworks, LTD.
1600 NE 18 Ave. PO Box 18084 Minn, MN 55418
612-649-4481

CIRCLE 442 ON READER SERVICE CARD

MACPINUP CALENDAR
MacPinUp combines 16 incredible images of beautiful women in swimsuits with an 18 month calendar and screen saver all in one program for $19.95, pick 2 for $29.95. Choose from Beach Babes, Blondes, Brunettes, & Surf Babes.

R&R COMPUTER SOLUTIONS
1501 E. Chapman #168, Fullerton, CA 92631
(714) 996-6545 (800)-323-6545

CIRCLE 443 ON READER SERVICE CARD

ADULT GRAPHICS
WE OFFER THE BEST IN ADULT-ORIENTED GRAPHICS FOR YOUR MAC. IF YOUR ARE 18 OR OLDER, REQUEST OUR FREE CATALOGUE OF SIZZLING ADULT SOFTWARE.
VISA AND MASTERCARD ACCEPTED.

CLEARLIGHT SOFTWARE
P.O. BOX 1411, DEPT. M, Milwaukee, WI 53201
(414) 962-2616

CIRCLE 444 ON READER SERVICE CARD

FINANCIAL

I SAVED $7801 REFINANCING
Your savings depends on goals, age, amount, term, rate/points combo, tax bracket. 3 Excel worksheets. 10 charts, guide. Easy use. Makes decision obvious. WHY GUESS? Maximize savings NOW while rates still low. Only $39

Personal Financial Analysis
62 Tucker Lane: Dept. UR-1
Dartmouth, MA 02747 508-994-4711

CIRCLE 445 ON READER SERVICE CARD

BrainMaker
'The most fascinating computer software I've ever seen. This is hotter than hot.' John Dvorak, PC Mag. Predicts stocks, commodities, sales, and more. Learns trends from the past.
Free catalog: (800) 284-8112

California Scientific Software
10024 Newtown Rd, Nevada City, CA 95959
(916)478-9040, fax: (916)478-9041

CIRCLE 446 ON READER SERVICE CARD

BUSINESSCARD

FONTS

FONTS AND CLIPART
POSTSCRIPT AND BITMAP FONT COLLECTIONS
Cyrillic, E.European, Text And Others $39.50 EA
Military, Kids Art, Floral Images $39.50 EA
Catalog Free - DemoDisk $3 - Dealer Inq. OK Visa/MC/Check/MO/$3s/h CA Res Add 7.75% Tax

DEVONIAN INTERNATIONAL
PO Box 2351 Montclair, CA 91763
714-621-0973 OR 714-621-2117 FAX

CIRCLE 447 ON READER SERVICE CARD

HEALTH

Nutrition/Medical Diagnosis
The Leader in Nutrition & Exercise Software! Analyzes Recipes, Diets, & Exercise Programs. Allergy, Differential Diagnosis, & Veterinary Diagnosis (including Fish/Small Animals). Over 100,000 sold. MAC & IBM. Call for information.

N-Squared Computing
3040 Commercial Street SE, Suite 240
Salem, OR 97302 (503) 364-9118

CIRCLE 449 ON READER SERVICE CARD

UTILITIES

Disk Ranger - new version!
Catalog disks & make labels. Make a master catalog of the contents of all your disks, floppy & hard drives. DRInit will constantly update the catalog. Find any file instantly! $59.95 + $2 shipping. Order direct from:

GRAHAM SOFTWARE CO.
8609 Ingalls Circle Arvada, CO 80003
Phone: (303) 422-0757, MC/Visa accepted

GOVERNMENT

FEDERAL JOBLINK-SF171
A forms software package for completion of the SF 171. It provides forms on screen and produces unlimited copies of the 171. The forms are near typeset quality. Also contains a comprehensive user's guide. Only $62.95. Requires MacDraw.

MULTISOFT RESOURCES
P.O. Box 235 Washington Grove, MD 20880
301-977-6972

CIRCLE 448 ON READER SERVICE CARD

RECREATION

SOFTWARE FOR HIKERS
Browse/print trail descriptions in the Pacific NW with Best Foot Forward™ for MAC. Fast and fun for all levels of experience! WA and OR databases each contain 700+ trails. CA soon! Program plus 1 db $89.95 plus tax/shipping.

GRIZZLYWARE
16837 NE 176th St., Woodinville, WA 98072
Call 1-800-258-HIKE today!

CIRCLE 450 ON READER SERVICE CARD

MISCELLANEOUS/SUPPLIES

FULL COLOR ON DESKWRITER!
Also works on StyleWriter. Now you can have high quality color printing at a very low cost!
Full color print kit for only $44
Single color print kit (2 refills) - $18
Black ink kit (2 refills) - $16.50

CONSUMER COMPUTING
2481 Mission St. San Marino, CA 91108
(818) 799-2290 • FAX: (818) 446-1071

CIRCLE 452 ON READER SERVICE CARD

MacUser MARKETPLACE

MacUser MARKETPLACE
One Park Avenue
Third Floor
New York, NY 10016
Attention: Paul Fusco

For more advertising information, call 212-503-5115 or 1-800-825-4237.

BUSINESSCARD ACCOUNT REPRESENTATIVE
Sherrie Graddic 212-503-5152

NATIONAL ADVERTISING STAFF

Vice President, Classified Advertising
Paul Stafford

Classified Advertising Director
Vickie L. Pinsky

Sales Manager
Paul A. Fusco

Advertising Coordinator
Nepreil Foster

Production Director
Anne Brockinton

Production Coordinator
Chris Meyer

ADVERTISING ACCOUNT REPRESENTATIVES

Account Representative
Lawrence Johnson 212-503-5138
AL, AR, IA, IL, IN, KS, KY, LA, MI, MO, MS, NE OH, OK TN, TX, WI, CANADA, OVERSEAS

Account Representative
Tom Koletas 212-503-5136
CT, DC, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV

Account Representative
Dennis Leavey 212-503-5111
AK, CA (209, 408, 415, 510, 707, 805, 916), HI, ID, MN, MT, ND, NV, OR, SD, WA, WY

Account Representative
Laura Salerno 212-503-5140
AZ, CA(213, 310, 619, 714, 818), CO, NM, UT

JOHN C. DVORAK

Failing Grades



Apple waited too long to push the Mac as an educational computer, and schools are paying the price.



I recently encountered a proposal from my local school district that concerned upgrading the elementary school's student-computer system. Essentially, the proposal writers and the steering committee wanted to buy more Apple IIe machines and burden the school with a dead-end technology that even Apple now discourages. It was obvious to me that the Mac should be the machine bought for today's schools.

Apparently the nation suffers from a terrible lack of understanding about desktop-computer technology and where it's headed. I collected several observations from various magazines that explored the state of computer education in schools. What I read was pretty depressing.

There are more than 1,200 recognized teacher education programs in the country today. How many of them adequately prepare future teachers to use technology across the curriculum? The common answer, according to the education school deans, faculty, and computer coordinators contacted by Electronic Learning Magazine, *is that technology does not permeate a student's typical pre-service education experience, and that is a major impediment to technology use once they become teachers.*

— Electronic Learning, *March '91*

But I suspect that another difference between the use of computers by the military and industry, and in education, is that the former introduce computers on a systematic and large scale while the latter does so in a small, haphazard way.

— Electronic Learning, *May – June '90*

The descriptions of some courses highlight software as a way to remove the mystery surrounding computers, but classes often do the opposite. A teacher-training class was fascinated with the ability of computers to alphabetize lists, and a student asked how the computer could do this. Shrugging her shoulders, the instructor responded: "I don't know. How does it know to be a word processor? It's magic!"

— Technology Review, *January '91*

The reality is that personal computers in the 1980s have not prompted the sort of sweeping changes in how we learn that many people anticipated during the late 1970s, when PCs began to take hold in business. Idealistic visions of a computer on every desk, innovative software in all areas of study, and a new generation of computer-trained, computer-enthused teachers and students have not materialized for the vast majority of our schools. Indeed, all but a few schools are far from achieving anything so grand.

— Personal Computing, *October '89*

I suppose I could go on and on with citations telling the same sad tale: The schools are getting little benefit from their computers. I'm not slanting the basic theme. Virtually no articles extoll the computer or cite benefits or success stories.

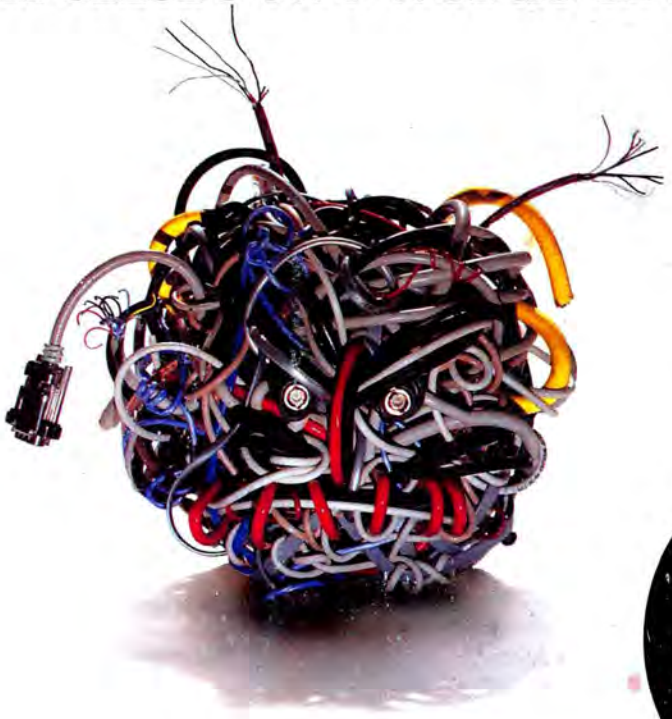
Most telling is the comment that computers have aided science, business, the military, and industry but not education. It makes you wonder what the problem is in the schools. Are we saying that it's impossible for schools to benefit from computers in the classroom? If you read enough of the criticisms, you'll discover that some critics go so far as to say that computers in the classrooms are just a waste of money. They claim that students don't really learn anything about them beyond how to turn on the power and insert a floppy disk. This "skill" can be learned at any time, and it's not important to the curriculum.

Well, that's probably true if computers are used at such a superficial level that they are simply glorified game machines. This will quite likely be the case if the Apple II continues to dominate classrooms. The fact is, the Apple II has to be expunged from schools and the Mac substituted. Apple itself was, until recently, of little help in making this happen. As one Apple spokesperson said to me, "It used to be verboten to mention the Mac as an educational computer." The reasons were twofold: members of the Apple II clique in Cupertino jealously clung to their education-market stronghold because they realized that it was going to be their last stand. At the same time, the marketing types who labored for years to make the Mac an acceptable business alternative to the DOS standard feared that the word *educational* would tarnish its reputation as a "serious" computer.

Well, Apple finally admitted defeat a year ago when it brought out the Classic and the LC, the latter of which can emulate an Apple II. But the message has been slow to reach educators. Obviously, the Apple II won't get junked until educators figure out that they are apparently the only group in the country that isn't benefiting from computer technology. In business and industry, computers improve efficiency and save money. Schools should be striving for both goals.

ILLUSTRATION: ROBERT ZIMMERMAN

If a growing network makes you think of this Farallon offers two words of advice:



NEW STARCONTROLLER HUBS
- 24 Ports
- In-band management
- Models PN357 and PN377 now shipping

Think again.

Does the thought of expanding your network leave you feeling tied up in knots?

You're probably not alone.

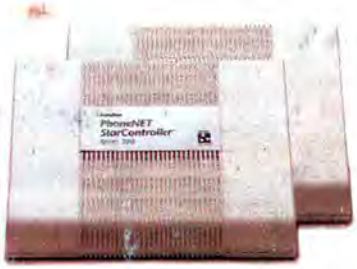
So we'd like to tell you about the PhoneNET StarController®. A simple yet intelligent alternative to what you may have in mind.

Networks that make sense.

PhoneNET Networks let you link your Macs and PCs, printers and servers. Using Ethernet, LocalTalk, and Token Ring, with modems and wiring that's already in place. You can extend the network across the building, or across the country. And you can manage it from a desktop. Our networks are used by 2 million people worldwide. Simply because they make sense.

StarController LocalTalk and Ethernet hubs use telephone wire—the kind already installed in your walls—to create a network that never needs rewiring. In fact, adding a new Macintosh or PC to the network is as easy as plugging in a new telephone.

Our newest LocalTalk hubs are available with either 12 or 24 ports. And they offer the same reliability and network management capabilities that have made Farallon the industry leader.



We've also added some new features. For example, you can use our enhanced StarCommand™ 3.0 software to manage hubs over the network or through a fault-tolerant bus. And if you ever do have a problem, StarCommand tells you where it is and, perhaps more importantly, how to fix it.

Of course, if you're thinking about growth, you may be considering Ethernet. Farallon's StarController Ethernet hub lets you add 10BASE-T when and where you need it most.



You can manage our Ethernet and LocalTalk hubs with the same copy of StarCommand.

And all of our hubs are designed for even further expansion. You can mount any StarController you buy today in the PhoneNET® concentrators now under development.

So if network growth is on your mind but you aren't sure what to do first—or what to do next—remember this: PhoneNET from Farallon.

Because when it comes to networking, it pays to think ahead.

For a free Macintosh demonstration disk of StarCommand software, call (800) 344-7481

CIRCLE 175 ON READER SERVICE CARD

PhoneNET™ Networks
Farallon

2000 Powell Street, Suite 600, Emeryville, CA USA 94608. Fax: (510) 596-9023.
Contact us online at AppleLink®, CompuServe®, AppleLink®, MCI Mail®, GEnie™ (ID for all: FARALLON) and Compuserve® (ID: 75410,2702) or Internet (ID: FARALLON @ FARALLON.COM)
PhoneNET, PhoneNET StarController, StarController and the Farallon logo design are registered trademarks and the PhoneNET Networks logo design and StarCommand are trademarks of Farallon Computing, Inc. All other trademarks are the property of their respective holders. All rights reserved. ©1991, Farallon Computing, Inc.

...But What Do

At Mirror, we build quality, reliability and value into every single product so we've got power users all over the country talking about them. It's the kind of talk we love to hear.

"Unarguably the best products in the Mirror line."
— Don Rittner

Don Rittner, president of M.E.C.C.A., thinks that monochrome monitors are Mirror's best products. But members of his own users' group disagree.

It's possible that Don may be right. After all, we've just introduced a new 21" two-page and a 15" full-page display. Use them with a built-in video port on some Macs or with a Mirror monchrome video card for a sharp, bright view of your work.

Stephen C. Frantz, Ph.D., member



The 19" two-page display comes with a monochrome video card for the SE, Classic, LC, SE/30, MacII or Quadra.

All three systems feature high-contrast, razor-sharp images, reduced VLF and ELF emissions, and built in ADB ports for reduced cable clutter.

Stephen Frantz prefers Mirror's color monitors because there's one for every need and budget. Like the 14" for example.



14" Color	$399*
16" Trinitron	$1399*
w/ 8-bit card	$1799
20" Trinitron, 8-bit	$2499
20" Trinitron, 24-bit	$2999

** for built in video ports*

"Mirror's 14" color is under 400 bucks, and it looks great."
— Stephen C. Frantz

...gives you large screen color to... monochrome price, 640 X 480 resolution for 56% more work space than Apple's 12" monitor, and brilliant color from

Hilary Koppel, member



the built-in video port of your LC IIsi, IIci or Quadra.

"Mirror's done it again. This is a real breakthrough, a 16" Trinitron for $1399."
— Hilary Koppel

Stephen is not the only one excited about Mirror color systems. Hilary loves the 16" Trinitron. Designed for the pro who demands the highest quality, but can't justify the high cost, the Mirror 16" Display has 832 X 624 resolution for comfortable viewing of two-page layouts or large spreadsheets.

Use Mirror's 16" Trinitron with the built-in video port on IIsi,IIci or Quadra, or our optional video card for any MacII.

If you need a no compromise two-page color display, Michael advises checking out the Mirror ProView.



Available in 8-bit or 24-bit models, the ProView is "a real bargain" according to the May '91

Michael Levy, member



...es He Know?"

Members of Macintosh Enthusiasts Club of the Capitol Area

issue of *MacUser* magazine. Featuring world class Trinitron quality so your most critical projects look flawless, the ProViews are still affordably priced.

"The ProView can handle my most demanding applications with ease; and best of all, I can afford it."

— Michael Levy

The Mirror color scanner, according to Nancy, is a remarkable product; 600 dpi 24-bit scanning for only $1299. It has more features and higher quality than competing models, yet is priced far less.



600 Color Scanner

"This would be a good scanner for $2000; for $1299 it's unbelievable."

— Nancy M. Benz

In December 1991 *MacUser* gave this scanner 4 mice, saying, "the quality of the hardware is excellent." and it "produced the best images."

If you need to get color or gray-scale images into your work, the Mirror color scanner is for you.



"Mirror's 88MB SyQuest drive solved my growing storage problem."

— John H. Galligan

Mirror offers hard drives from 30 MB to 1 Gigabyte, and each one has the quality features that won John over: top quality drive mechanisms, rugged steel chassis, external termination ar[illegible] address switch, convenie[illegible] outlets and a two year warranty.

HARD DRIVES	EXT.	INT.
45MB	$329	$269
50MB(Q)	$349	$289
80MB	$369	$299
105MB(Q)	$499	$439
210MB(Q)	$799	$739
45MB Rem.*	$499	N/A
88MB Rem.*	$649	N/A
CD ROM	$599	N/A

Call for other capacities.
**Price Includes one cartridge*

Whether you need a zero-footprint drive, a super compact portable drive, or an 88 or 45 MB Syquest drive, Mirror's got the right stuff.

Tough customers all over choose Mirror products for quality, performance and value. We offer a complete line of Macintosh peripherals including hard drives, displays, scanners, printers, CD-ROM drives, and tape back-up units.



Call for our free catalog to read what the experts say about Mirror peripherals. Superior products, superior value, all backed by our famous **30-day, "love it or return it" guarantee.***

Nancy M. Benz, member



John H. Galligan, member



MIRROR

To Order Direct, Call 1-800-654-5294

Media:1000

CIRCLE 118 ON READER SERVICE CARD.

FEDERAL EXPRESS

Technical Support Hotline: (612) 633-2105
Telephone: (612) 633-4450 Fax: (612) 633-3136
Address: 2644 Patton Road, Roseville, MN 55113

All prices subject to change.
*You pay shipping costs.
® Trinitron is registered trademark of Sony Corporation
†Available 2/1/92

"Don Says Mirror's New Monochrome Displays Are Clearly Their Best Product...

Don Rittner, President of M.E.C.C.A.
Editor of MUG News Service

$449 *for built in video*
(call for other options)



19" $799 *with card.*
21" $999 *with card.*